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1960-61

A REVIEW



KALIBANGAN

INDIAN ARCHAEOLOGY 1960-61
-A REVIEW

EDITED BY

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I also heartily thank those members of the Archaeological Survey of India who helped me in diverse ways in bringing out this *Review*.

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The 7th November, 1961

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-A REVIEW I. EXPLORATIONS AND

EXCAVATIONS[1]

ANDHRA PRADESH

1. EXCAVATION AT NAGARJUNAKONDA, DISTRICT GUNTUR.—In continuation of previous years' work *(Indian Archaelogy*, 1959-60—*A Review,*[2] p. 5), the Nagarjunakonda Excavation Project of the Survey[3], under Shri H. Sarkar, excavated a palaeolithic site in the valley and brought to light an earlier river-bank cut into the granitic bed-rock. Resting against and partly overlapping the bank was a pebble-bed, which, in turn, was covered by a talus from an adjacent hill (pl. I A). Palaeoliths, mostly unrolled, were found concentrated at the junction of the pebble-bed and the talus, which indicated that the palaeolithic settlement had been established right on the pebble-bed and that the accumulation of the talus was a subsequent event. Characteristically Acheulian, the tools comprised the handaxe, ovate and cleaver, the last-named far outnambering the rest.

Further exploration in the valley also yielded scrapers, points etc., comparable with those of Series II.

2. EXPLORATION IN DISTRICT GUNTUR —The Nagarjunakonda Excavation Project of the Survey, under Shri H. Sarkar, assisted by Shri K. Krishnamurthy, also undertook an examination of the less-known sites in the District in order to compare their contents with those of the well-known site of Nagarjunakonda. The Rouletted Ware, absent at Nagarjunakonda, was picked up at Vaikuntapuram and Chebrolu, respectively 29 kilo-metres north and 11 kilometres south-east of Guntur. In addition, the former site yielded the Black-and-red Ware and black-slipped and red wares of the early historical period. The 9-metre high mound at Chebrolu yielded also the Northern Black Polished Ware, the Black-and-red Ware and a black-slipped ware, besides neoliths.

At Lam, 10 kilometres north of Guntur, were discovered megaliths characterized by circles of untrimmed granite boulders. The pottery included the elongated stand and jar, the latter with finger-tip patterns, both in red ware, the vase with flared and externally thickened rim and flat base in the Black-and-red Ware and the vase with sharpened rim and grooved exterior in black ware.

Megaliths were also discovered at Motadaka and Le Malle on the Guntur-Amara-vati Road and at Yedlapadu near Chilakaluripet, of which the most intact and extensive ones were those at Motadaka.

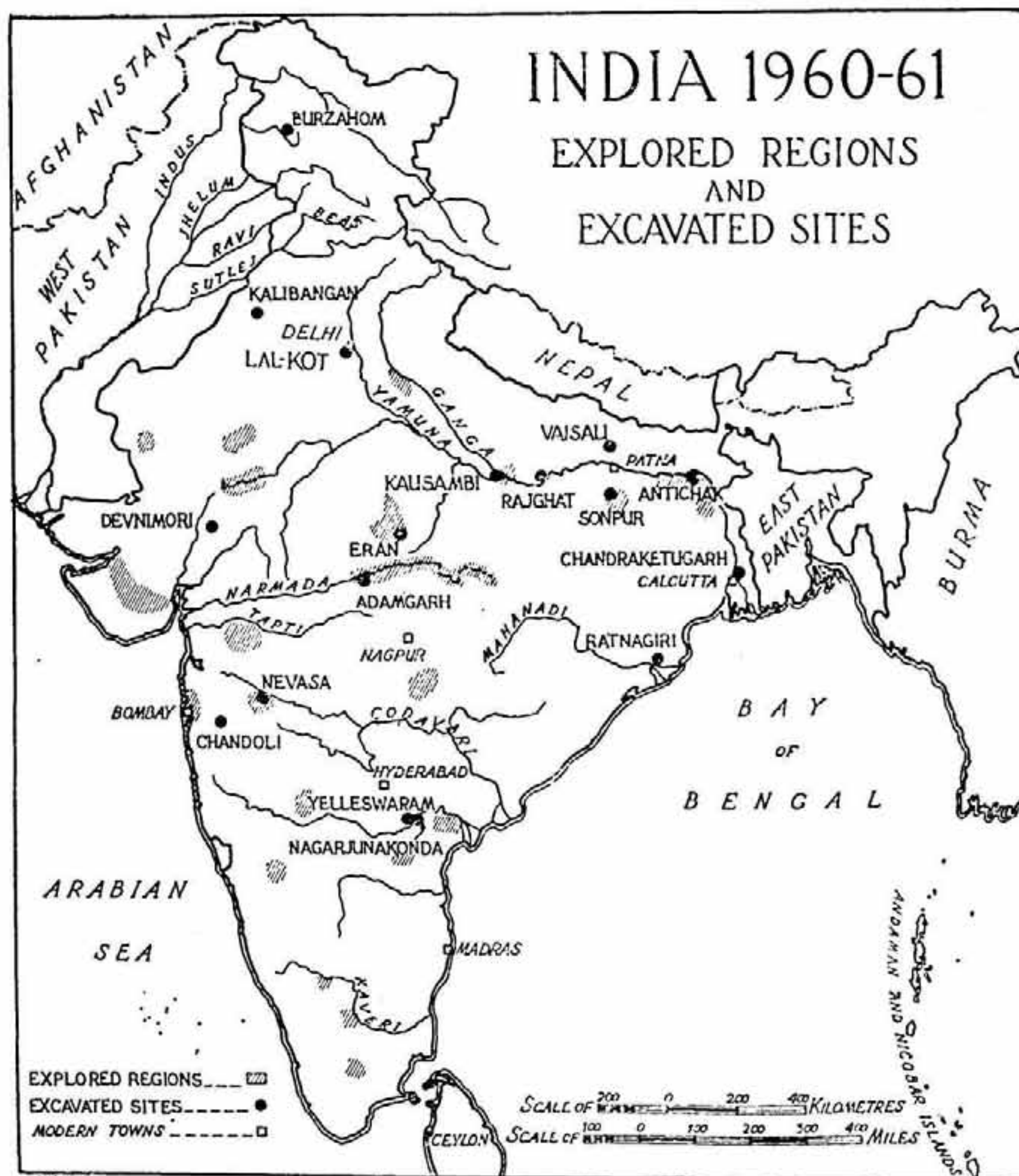
3. EXPLORATION IN DISTRICT KURNOOL.—In the course of his exploration, Shri K. Raghavachary of the South-eastern Circle of the Survey discovered palaeoliths at Pitikayagulla in Giddalur Taluk.

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[1] See fig. 1

[2] This publication is referred to in the following pages by the year only.

[3] The 'Survey', here and in the following pages, means the Archaeological Survey of India, the present
(revived) name of the Department of Archaeology, Government of India.



INDIA 1960-61
EXPLORED REGIONS
AND
EXCAVATED SITES
AFGHANISTAN
WEST PAKISTAN
INDUS
JHELUM
RAVI
BEAS
SUTLEJ
BURZAHOM
KALIBANGAN
DELHI
LAL-KOT
NEPAL
YAMUNA
GANGA
VAISALI
PATNA
KAUSAMBI
RAJGHAT
SONPUR
ANTICHAK
EAST PAKISTAN
BURMA
DEVNIMORI
ERAN
CHANDRAKETUGARH
CALCUTTA
NARMADA
ADAMGARH
TAPTI
MAHANADI
NAGPUR
RATNAGIRI
NEVASA
BOMBAY
CHANDOLI
GODAVARI
HYDERABAD
YELLESWARAM
NAGARJUNAKONDA
BAY OF BENGAL
ARABIAN SEA
MADRAS
KAVERI
ANDAMAN AND NICOBAR ISLANDS
EXPLORED REGIONS
EXCAVATED SITES
MODERN TOWNS
SCALE OF KILOMETRES 200 0 200 400
SCALE OF MILES 100 0 100 200 300 400
CEYLON

FIG. 1

4. EXCAVATION AT YELLESWARAM, DISTRICT NALGONDA.—The Department of Archaeology, Government of Andhra Pradesh, resumed (1958-59, p. 11) the excavation at Yelleswaram, under Shri Abdul Waheed Khan. The entire temple-area was excavated down to the natural soil.

To begin from the top downwards. The surface-finds, for obvious reasons, included a large variety of antiquities—stone celts, early historical pottery, coins and two limestone pillars bearing sixth-century inscriptions. The layer below the ancient humus yielded antiquities of the post-Ikshvaku period. Below it were encountered several structures. One of them, in Sector 3, Division 181, was an apsidal *chaitya*-hall, oriented north-south, the apsidal end measuring 10 x 6.6 metres. The width of the *chiaitya*-wall, in which wedge-shaped bricks were used at the apsidal end, was 2 25 metres. Behind this *chaitya*, was another apsidal structure, of which, however, only the apsidal portion was intact.

In the same Division, at a level lower than that of the *chaitya,* was encountered a large hall, the lime-stone pillars of which were arranged in six rows from north-west to south-east and eight rows from south-west to north-east, the distance between two adjacent pillars being 2.7 metres. The space between certain pillars was walled up to form rooms.

Emerging-from the base of the adjacent hillock, at a distance of about 4 metres to the west of the *chiaitya*-hall, was a wall running north-south. Constructed of large bricks (size 56x28x7.5 cm.) in clay-mortar, it measured 30 metres in length and 1.8 metres in width. At the northern end of the wall was a semi-circular entrance, where-after the wall turned westwards to continue to a length of 35 metres. Within the area outlined by this wall were over forty shrines of various shapes and sizes, each containing a *linga* in the centre.

In Sector 2, Division 220, were found the remains of a brick *stupa* measuring 12.3 metres in diameter. It had two oblong projections, one each on the southern and western sides. At a level lower than that of the *stupa* was encountered a megalithic burial.

In Divisions 160 and 161 of Sector 2, at a level lower than that of the enclosure-wall mentioned above, was exposed a large bathing-*ghat* with twenty-five steps leading down to the river.

BIHAR

5. EXCAVATION AT ANTICHAK, DISTRICT BHAGALPUR.—The Department of Ancient Indian History and Archaeology, University of Patna, under Professor B. P. Sinha and Dr. R. C. P. Singh, conducted excavation at Antichak, the supposed site of the Buddhist establishment of Vikramasila, 13 kilometres north of Colgong railway-station. The village and its neighbourhood have very extensive mounds covering an area of not less than 10 square kilometres.

Initially, three trial trenches, ACK-1 to ACK-3, were sunk in one of the mounds, which revealed three structural phases. Of these, the middle phase yielded a terracotta votive *stupa* bearing an inscription, *Sri-Dharamadhara* ••• *devasya,* in the late Pala script, which suggests that there might have been some sort of a monastic establishment at the site.

The excavators took up another mound, 14.5 metres in height and cruciform on plan, where two trenches, ACK-4 and ACK-5, measuring 35 x 5.4 metres and 28 x 5.4 metres respectively, were laid out on the northern and southern periphery.

In ACK-4 three stages of occupation were observed. Of these, the earliest stage was marked by two floor-levels. Made of *surkhi* and associated with a brick wall and

a circular oven containing charcoal, the earlier floor yielded red and grey wares and oval terracotta balls. From the second floor, overlying the earlier structure, was recovered a sherd with a highly-smooth and shining black surface.

The second occupational stage was marked by the construction of brick pillars and structures of a massive character. Two floors were observed at this stage as well. The earlier floor, characterized by a whitish mud-layer overlying rammed brownish earth, yielded red and grey wares and a carved brick depicting a human figure. The second floor, of *surkhi,* was associated with a mud-platform over which was found an elephant-like terracotta figurine.

The third stage began with a general raising of the site by fillings of various kinds. Belonging to it were circular brick structures, probably representing votive *stupas,* a brick pavement and a staircase with three steps. The associated antiquities included Budhistic images, iron nails and a terracotta seal. Two of the images carried inscriptions in the proto-Bengali script. The pottery was represented by plain and slipped red wares, grey ware with a black slip, and plain grey ware. A few green-glazed sherds were also found in the overlying debris.

In ACK-5 also were observed three stages of occupation. Of these, the earliest had two floor-levels, the earlier of them associated with a stone pestle and a few ill-fired red ware sherds. Ascribable to the second stage were two walls of coarsely-laid bricks and six longish shallow channels running north-south and containing a large quantity of charcoal.

Overlying the second floor of the first stage was a fragmentary pavement of half-burnt bricks, sometimes set on edge. Associable with this pavement of the second stage were pillars and high walls, all of burnt bricks.

The third occupational stage was marked by a general filling up of the site with a variety of materials and by the use of a new type of bricks which measured 32 x 25.5 x 5 cm. Stone was also used for the first time as a building-material. On a wall were noted two coats of plaster. A comparatively-late floor of the period was composed of sand and lime mixed with red pigment. The pottery included plain and dull-slipped red wares and plain and black-slipped grey wares.

Amongst the other finds of the stage mention may be made of a black-stone image of Buddha in *bhumisparsa-mudra,* a few votive *stupas,* copper and ivory bangles, a bronze nose-ring, coins and a human figurine carved on a brick. The last-named item was found just below a niche in a wall, and it may perhaps be assumed that the figure was originally placed in the niche for purposes of worship. Near the wall were a few pots containing ashes and bits of bone.

6. EXPLORATION IN DISTRICT GAYA.—In the course of his exploration in the Jethian valley, Shri L. A. Narain of the K. P. Jayaswal Research Institute, Patna, noticed, among other ancient remains, a 13-metre long drain (pl. I B), locally known as Goriya-Khoh, on the western periphery of the Budhiyana hills. The large size of the stones used in the drain reminds one of the fortification walls of Rajgir.

7. EXCAVATION AT SONPUR, DISTRICT GAYA.—In continuation of previous years' work (1959-60, p. 14), Dr. B. S. Verma and Shri L. A. Narain of the K. P. Jayaswal Re search Institute, Patna, carried out further excavation at the site, which, in confirmation of the earlier analysis, revealed three successive cultural Periods, with a sub-division in the earliest, accounting for an overall deposit of about 6 metres.

Sub-period IA was characterized by a crude black-and-red ware, usually wheel-made, although instances of completely hand-made vessels were not altogether wanting.

Red and black wares also occurred, though in a lesser Frequency. A prominent pottery-type was the bowl, sometimes lipped or perforated. The absence of structural remains suggested that the houses were made presumably of perishable material like wood, etc.

Sub-period IB was distinguished from the preceding Sub-period on account of its finer pottery, invariably wheel-made and often well-polished. A new pottery-type appearing in this Sub-period was the dish. Of interest were a few post-cremation pit-burials. Varying from 1.2 to 1.8 metres in diameter and going down to a depth of 75 cm., the pits were full of ashes, bone-fragments and pots of red, black and black-and-red wares. The other finds of the Sub-period comprised beads of terracotta and semi-precious stones, bone points and stone (sling?) balls. Charred rice in a large quantity, in the debris of a burnt storage-jar, was a unique discovery in this Sub-period.

Period II was marked by the occurrence of the Northern Black Polished Ware, which included fine examples of golden and silvery shades as well. Also noteworthy was the presence of painted designs in white pigment on red and black wares (pl. II A). Besides, the black-and-red ware of the preceding Period also continued. Traces of mud-walls were noticed in some of the trenches. At one place was also encountered a platform, over a part of which were few complete pots, while on another part there lay a saddle-quern and four pestles of stone around a probable hearth, the whole picture fitting into that of a kitchen. Ascribable to this Period were also half-a-dozen polished stone axes (pl. II B), athough iron implements had already made their appearance. Amongst the other finds were beads of terracotta, stone and glass, terracotta figurines of birds, *nagas* and human beings and bone points.

In Period III the N. B. P. Ware and black-and-red wares were conspicuously absent, the most common pottery present being a red ware of medium or coarse fabric. The sprinkler also made its appearance in an upper stratum. Several brick structures were met with, the average size of the bricks being 43x30x6 cm. The associated finds included beads, bangles, birds, wheels and toy-carts of terracotta, antimony-rods of copper and a few objects of iron.

On the present showing, the beginning of the occupation at Sonpur may date back to the first quarter of the first millennium B. c, while its end is likely to fall in the early centuries of the Christian era.

Here it may be added that in the vicinity of the mounds, Dr. Verma located a microlithic site yielding finished tools and cores of carnelian, chalcedony, quartz, flint, chert, etc. (pl. III).

8. EXPLORATION IN DISTRICTS MONGHYR AND SANTAL PARGANAS.—Working independently, two teams, one of the K. P. Jayaswal Research Institute, Patna, represented by Shri Sita Ram Roy, Dr. B. S. Verma and Shri L. A. Narain, and another of the Department of Ancient Indian History and Archaeology, Patna University, headed by Dr. R. C. P. Singh, explored variously a number of prehistoric sites.

In Monghyr District, at Bhimbandh, 11 miles north-west of Kharagapur, both the teams discovered, besides palaeoliths which had also been reported earlier, tools of Series II and III (pl. IV). Dr. Singh also observed that in river-sections tools of Series II lay in a red soil which was overlain by a grey soil bearing tools of Series III.

At Karkhup, Dr. Singh found, besides tools of Series II, a large number of pieces of iron slag and terracotta crucibles associated with ovens. He also noted tools of Series I by the side of Sitakundi rivulet at the Jamalpur hill.

In District Santal Parganas, the Jayaswal Research Institute team, at the instance of Dr. K. K. Datta, the Director of the Institute, explored the region between Berhait and Sahebganj. At Paharpur, on the southern bank of the Gomai river near Berhait,

and at Mohantada, Bandarkola and Amjani, respectively 6½ , 8 and 13 kilometres north of Berhait, were discovered, variously, palaeolithic flake-tools on quartzite, scrapers of Series II on chert and quartzite, and microliths, both geometrical and non-geometrical, on quartzite, crystal and chert, the specimens of the last-named material far outnumbering the rest (pl. V).

Dr. Singh collected tools of Series II from the bed of the Sankhogara near Parer-kola and at the foot of the Chhoti Suraj Bera hill, 80 kilometres east of Dumka and tools of Series III from the beds of the Gumra near Kathi-Kunda, the Bansloi near Amrapara and the Mayurakshi near Masanjore.

9. EXCAVATION AT VAISALI, DISTRICT MUZAFFARPUR.—In continuation of previous years' work (1959-60, p. 14), the K. P. Jayaswal Research Institute, Patna, under the supervision of Shri Sita Ram Roy, carried out excavation at two new sites, Baniya and Lalpura, located respectively to the north and south of Chakramdas, excavated last year.

Excavation at Baniya revealed three Periods of occupation, of which the earliest was marked by the occurrence of the Northern Black Polished Ware together with its associated red wares and other antiquities.

From the lower levels of Period II were obtained deep bowls and sprinklers of red ware and terracotta human figurines—a few of which wore the typical Kushan turban. In an upper level of the Period was exposed an approximately 4 metre square shrine of brick having a projected opening on the south (pl. VI).The associated antiquities, including terracotta figurines, suggest that the shrine belonged to the Gupta age. Immediately to its north-east were the ruins of a small platform-like brick structure, measuring 2x1.8 metres, and it is guessed that both the structures formed parts of a much bigger complex.

The structures of Period II were sealed by a sterile, yellowish, compact earth—probably a flood-deposit. From the overlying humus, however, were picked up a few sherds of the Muslim glazed ware pointing to a contemporary occupation, Period III, in the neighbourhood.

In one of the trenches, near the Chaturmukha-Mahadeva temple, an earthen heap, resembling a mud *stupa*, was exposed to a depth of 1.5 metres, the radius at the base being 8 metres. The deposit below the *stupa* contained the N. B. P. Ware and its associated red and grey wares and terracotta figurines.

In another trench in the area were found a few sherds of the black-and-red ware in association with some sherds of the N. B. P. Ware and a pot of grey ware with wash-like painting in black.

Excavation at the highest point in the locality of Lalpura yielded the N. B. P. Ware and associated terracotta figurines right from the top to the water-level—a depth of about 3 metres, indicating that the site had been deserted long before the Christian era.

DELHI

10. EXCAVATION AT LAL-KOT, DELHI.—The North-western Circle of the Survey resumed excavation at Lal-Kot (1958-59, p. 25) to distinguish precisely the core of the exposed inner wall from later accretions and to expose the entire length of the wall itself. Further, the inner wall was cut across at four different places, which confirmed the earlier view that it was built in two phases. The rubble wall and the brick revetment on its west formed parts of the original planning, while the dressed-stone facing (pl.. VII A) was added later. The eastern face of the wall was reinforced with another rubble wall, the gap between them being filled with loose stone rubble (pl. VII B).

GUJARAT

11. EXPLORATION IN DISTRICTS AMRELI, BHAUNAGAR, JAMNAGAR, KUTCH AND RAJKOT.—With a view to completing the picture of protohistoric settlements in the area, explorations were undertaken by Shri J. M. Nanavati of the Department of Archaeology, Gujarat, in the valleys of the Aji, Ghelo, Kalubhar and Shetrunji in Saurashtra and in the Khavada and Kanthkot regions in Kutch. This brought to light : eight Harappan and one early historical sites in the Ghelo valley ; eight Harappan and six early historical sites in the Kalubhar valley; one Harappan and seven early historical sites in the Shetrunji valley ; seven Harappan and one early historical site in the Aji valley; and one Harappan and two early historical sites in Kutch. Two Harappan sites in the Ghelo valley, and one such site in Kutch also yielded early historical pottery. The Harappan sites yielded the usual dish-on-stand, convex-sided or carinated bowl, ledge-necked jar, etc. Three sites in the Ghelo valley yielded the Lustrous Red Ware and the chalcolithic black-and-red ware. Four sites in the Ghelo valley, two in the Kalubhar valley, and four in the Aji valley yielded a coarse corrugated ware of the Prabhas-Rojdi type. Two sites in Kutch yielded a ware of the type formerly excavated at Vasai, Vadnagar, Amra and Lakhabaval— provisionally called here the 'Vasai Ware'. It seems to be a variant of the Rangmahal-Bhinmal ware. The early historical sites in Saurashtra yielded the Red Polished Ware, which, it may be added, was absent in Kutch. A detailed list of the sites with their ceramic industries is given in the adjoining Table.

DISTRIBUTION OF WARES

(H=Harappa Ware; CC=coarse corrugated ware; CBR=chalcolithic black-and-red ware; LR=Lustrous Red Ware; V=Vasai Ware; and RP=Red Polished Ware)

DISTRICT	LOCALITY	SITE	RIVER-VALLEY	WARE
Amreli	Rajthali	Hanumandhoro	Shetrunji	RP
Do	Timana	Dhuapnio	Do	H
Bhaunagar	Alatala	Khetarvalo	Ghelo	H
Do	Do	Old Alatala	Do	H, CC, LR, CBR
Do	Babra	Sonpari	Kalubhar	RP
Do	Baravada	Devalio	**Do**	H
Do	Bhcgali	Bhegali	Shetrunji	RP
Do	Bodaka	Jilada	Do	RP
Do	Chandgadh	Chandgadh	Do	RP
Do	Darel	Mahadevayo	Kalubhar	H, CC
Do	Darel	Ranigam	Ghelo	H,CC, LR, CBR, RP

District	Locality	Site	River-valley	Ware
Bhaunagar	Datarad	Khodiyar	Shetrunji	RP
Do	Jngorad	Khalavad	Do	RP
Do	Junavadar	Lakhavav	Kalubhar	H
Do	Keriya	Keriya old	Do	RP
Do	Khadkla	Laliyo	Shetrunji	RP
Do	Khakharia	Nehur	Kalubhar	RP
Do	Lakhanka	Holidhar	Ghelo	H
Do	Do	Makavana	Do	H, CC, LR, CBR, RP
Do	Old Gorkhi	Aledhar	Shetrunji	RP
Do	Paliyad	Patana	Kalubhar	RP
Do	Pasegam	Timbi	Do	RP
Do	Patana	Patana	Do	RP
Do	Rajpipla	Keravalo	Do	H
Do	Do	Pasegam	Do	H
Do	Rampara	Khanderio	Ghelo	H, CC
Do	Do	Old Rampara	Do	RP
Do	Samadhiyala	Charanio	Kalubhar	H
Do	Tarpada	Old Tarpada	Do	RP
Do	Vangadhara	Jivani	Do	H, CC
Do	Do	Vaharvo	Do	H
Jamnagar	Bodaka	LakhanTimbo	Aji	H, CC
Do	larana	Tarana	Do	H, CC
Kutch	Kanthkot	Khakhra Dera		H, V
Do	Lakhpat	Lakhpat	—	H, V
Do	Mevasa	Mevasa	—	V
Rajkot	Gadhada (Nag Bali)	Gadhada-1	Aji	H, CC

District	Locality	Site	River-valley	Ware
Rajkot	Gadhada (Nag Bali)	Gadhada-2	Aji	H
Do	Do.	Gadhada-3	Do	H, CC
Do	Khakhara Bela	Khakhara Bela-1	Do	H, CC
Do	Do	Khakhara Bela-2	Do	RP
Do	Do	Khakhara Bela-3	Do	H

12. EXCAVATION AT DEVNIMORI, DISTRICT SABAR-KANTHA.—Under the auspices of the Maharaja Sayajirao University of Baroda, Professor B. Subbarao, Dr. R. N. Mehta and Shri S. N. Chowdhary continued (1959-60, p. 19) the excavation at Devnimori.

Of the *vihara*, the entire eastern side and the rest of the cells and the entrance on the northern side were cleared (pl.VIII). The overall measurements of the *vihara* were 37.5x40.5 metres, and those of the courtyard 25x22 metres.

Three main Phases in the construction of the *vihara* were noted, the earliest going back to *circa* A. D. 200.

In the first Phase the basic plan of the *vihara* consisted of a large, brick-paved courtyard, around the four sides of which ran a verandah, which, in turn, was enclosed by a series of cells, the entire structure being immediately on the natural alluvium. In the centre of the verandah on each side was a platform. The entrance, through a porch, was from the northern side, while the shrine, facing the entrance, was located on the southern. The outer wall had a simple round moulding on the southern side. In the filling between the first and second Phases of the shrine was found a fragment of a large footprint of Buddha with *svastika* -marks on each finger. The bricks were of the standard Kshatrapa size, 40.6 x 28 x 7.6 cm., found in dated structures at Baroda, Vadnagar, Intwa and Somnath. There were also a few fragments of the Red Polished Ware but no coins to date the Phase firmly.

Being right on the bank of a river, Meshvo, the structures were exposed to floods. Thus, in the second Phase, the plinth-level of the *vihara* was raised by as many as 1.2 metres and that of the courtyard by 75 cm., the filling being done with silt and gravel (pl. IX). In addition, the outer wall was widened with the addition of an abutting wall, the exterior of which was provided with a series of beautiful mouldings consisting of round drums and recessed ledges. The nature of the construction, viz. the use of large, well-burnt bricks with very little mortar, however, remained unchanged.

As to the date of the second Phase, there is sufficient numismatic evidence. Last year, the floor of a cell of this Phase had yielded nine silver coins of the Kshatrapas, of which three could definitely be ascribed to Visvasena (295-304). This year, a hoard of thirty-seven silver Kshatrapa coins (pl. X) was found, which may provisionally be classified as follows : Viradaman, 1 coin; Visvasena, 7 ;. Bhartridaman, 1; Jivadaman, 1; Svami-Rudra-sena, 1; and unidentifiable, 26. This shows that the second Phase could not be earlier than A. D. 300. Thus, taking into consideration the evidence of art and architecture as well, this phase may be dated between A. D. 300 and 400.

The third and last Phase of the *vihara* showed a distinct change in the size of the bricks, the nature of the construction and the mouldings on the outer wall. The brick size dropped down to 33x23x5 cm. (Similar change was noticed at Baroda and Somnath between A. D. 600 and 1000.) The construction became very shabby and a large amount

of mud mortar, sometimes as thick as *11/2* cm., was used between the bricks. The outer wall was further widened, only a very simple facade of offsets being given to it.

From a large dump in a pit of this Phase were recovered pots of a black burnished ware reminiscent of those found earlier at Akota and Vadnagar and ascribable to *circa* A. D. 600-1000. Thus, the Phase may provisionally be dated to *circa* A. D. 400-700.

As reported last year, the *stupa,* of the Gandhara type with an elongated drum, rests on two square platforms, the lower one of which measures 26 metres square. This year, the entire northern face of the *stupa* was exposed, revealing a large retaining wall of rubble capped by brickwork (pl. XI A.)

Of the *stupa* two main structural Phases were confirmed. However, the presence of a large amount of structural debris below the *stupa* as exposed and the resemblance between the outer moulding of the lower platform of the *stupa* and the moulding of the second Phase of the *vihara* suggest that there might be an earlier *stupa* beneath the present one.

Ascribable to the first Phase of the *stupa* were twenty-two images of Buddha in *dhyana-mudra,* which, except one, can stylistically be divided into three groups. The drapery folds in these groups are indicated respectively by upraised ridges, a deep single line and fine parallel lines. The commonest at Devnimori, the last-named group would correspond to the third and fourth groups of Harold Ingholt's classification of the Gandhara sculpture. The pilaster-capitals with pseudo-Corinthian decoration, the cornices and the square bricks with floral and geometrical designs are all very akin to those from the *stupas* at Mirpur-Khas.

On the basis of the aforesaid parallels as well as of its probable equation with the second Phase of the *vihara* (above), the first Phase of the existing *stupa* may be dated to *circa* A. D. 300-400.

In the second Phase of the *stupa* extensive repairs were done to the upper platform constituting the *pradakshina-patha* (pl. XIB). At places, the round projecting drums were straightened. Decorated bricks were used indiscriminately. In a repaired portion was found, between two bricks, a coin of Bhatarka, the founder of the Maitraka dynasty of Valabhi. Some of the images were replaced. Besides, the general ground-level rose and late walls abutted against the lower platform to the height of the bases of the pilasters.

On the western side of the *stupa* were exposed two 2.4 metre square platforms, probably representing the bases of accessory *stupas.*

Last season, a portion of the apse of a temple was exposed. Further work, however, revealed that the site had extensively been robbed for bricks. Fortunately, however, the robber-trenches had got filled up with debris. Thus, chasing the 'ghost walls' carefully, the plan of the temple was duly determined. It consisted of an apse, 4.2 metre in diameter, an oblong nave in the front and 1.2 metre wide aisle running around them both. The overall dimensions of the temple were 15.3 x 10.5 metres. From the size of the bricks 33 x 23 x 5 cm. used in its construction, the temple may be guessed to have been contemporary with the third phase of the *vihara.*

Amongst the finds, mention may be made of: specimens of an embossed ware reminiscent of that found at Rangmahal and Sirkap; a seal with the usual Buddhist creed in Brahmi characters of the fourth century; one each of a gold-plated broach and pendant (pl. XII A); beads of carnelian and agate; and nails, knives and arrow-heads of iron.

The area around Devnimori abounds in dunes, on the surface of which microliths are found. With a view to verifying if the microliths belonged to a fossil-soil horizon, as at Langhnaj, Shri S. C. Malik of the Baroda University excavated two trenches into the dunes. His results, further verified by means of a soil-investigation carried out by Shri K. M. Hegde

of the same University, confirmed that the microliths did belong to a fossil-soil horizon. The specimens, falling in line with their other counterparts in Gujarat, comprised lunates, triangles, trapezes, backed blades, awls and fluted cores (pl. XII B). Several perforated stones, probably weights attached to digging-sticks, were found on the surface.

JAMMU AND KASHMIR

13. EXCAVATION AT BURZAHOM, DISTRICT SRINAGAR.—The well known megalithic site of Burzahom, situated on the Yendrahom Karewa (pl. XIII), about 24 kilometres north-north-east of Srinagar, was excavated by the Frontier Circle of the Survey under Shri T. N. Khazanchi, assisted by Shri Raghbir Singh and Shri K. M. Srivastava. The excavation revealed that the earliest settlers were some sort of 'pit-dwellers'. Cut into the Upper Karewa bed, the pits were roughly circular or oval on plan and varied from 1½ to 1½ metres in depth, the mouth quite often being very narrow (pl. XIV A). The bottom was usually flat, over which, in a couple of examples, were also noticed ashy deposits signifying human occupation. Some other noteworthy architectural features of the pits were the provision of a landing step in a deep pit (pl. XIV B), the excavation of a few niches (pl. XV A) in certain cases, and, in one case, the interconnection of two nearby pits by means of a small arched corridor plastered with mud (pl. XV B). The occurrence of charred reeds and post-holes in one of the pits suggests that in all likelihood there also existed some kind of a roofing-arrangement. The pit-deposits yielded a few polished stone axes, bone tools, and generally hand-made, mat-impressed (pl. XVI A), steel grey pottery, the more common types in the last-named item being the deep bowl with pedestal base and jar with flaring rim (pl. XVI B). A few wheel-made burnished sherds of red ware were also noticed.

The next phase was characterized by structures of mud and mud-bricks, a black burnished ware (pl. XVII A), polished stone axes (pl. XVIII) and a large number of polished bone tools comprising awls, arrow-heads, harpoons, etc. (pl. XVII B). Made of the Himalayan trap, the stone axes are typologically different from their southern or eastern counterparts. In the black burnished ware, which, incidentally, is different from the well-known Northern Black Polished Ware, the types included the funnel-shaped vessel, basin with obliquely-cut rim, jar with splayed-out rim and occasionally decorated externally with triangular incisions. In a wide and deep pit, having a charred lining, was found a large number of animal bones, especially of the deer, indicating that the pit might have been used as a communal hearth (pl. XIX A). The closing stage of this phase revealed two burials, one each a primary and a secondary.

To the next higher phase belonged the massive megalithic complex, of which only six stones appear to be in position : five verticals, now for the most part leaning, and a sixth one now lying flat—all put together forming a rough semi-circle. A few other stones, lying partially buried, are obviously not in their original positions. The purpose for which these megaliths were erected is not clear, but it was evident that they were erected towards the end of the neolithic period. In the associated occupational deposits were found a few specimens of the black burnished ware, the fabric, however, being coarse and the polish of a low order, and a few polished stone axes and bone tools. The pottery, in which the red ware dominated, was generally wheel-turned, the most distinct type being the miniature vase which probably served as a toy or had a ritualistic purpose. Incidentally, it may be stated that the Black-and-red Ware, usually associated with megaliths in the south, was conspicuously absent.

The last phase (pl. XIX B) belonged to a period which, according to the available evidence, may be dated somewhat earlier than the Buddhist site of Harwan ascribable to the third-foruth century.


ADAMGARH 1961
SECTION THROUGH PALAEOLITHIC SITE
SCALE OF 1 0 1 2 METRES
SCALE OF 2 0 2 4 6 8 FEET


NORTH-WEST
SOUTH-EAST
LATERITIC GRAVEL
RED CLAY
1
2
3
P
P=PALAEOLITH

FIG. 2

MADHYA PRADESH

14. EXPLORATION IN DISTRICT GUNA, SAGAR AND VIDISHA.—In continuation of his last year's work (1959-60, p. 21), Shri Rameshwar Singh of the Deccan College Post graduate and Research Institute, Poona, explored the valleys of the Betwa and its tributeries, the Bina and Dhasan. The Bina has cut a section comprising, from bottom upwards, 1.5 metres of coarse sandy silt, 2.4 metres of rubble-gravel and 8.1 metres of yellowish silt. Eleven tools were found *in situ* in the gravel, while forty were collected from the dry river-bed. They consisted of cordiform bifaces, side-and end-scrapers on flakes, points, discoid side-scrapers and discs. The size, raw material and typology of the tools bring them nearer to those of Series II, with which they seem to provide a link.

15. EXCAVATION AT ADAMGARH, DISTRICT HOSHANGABAD.—The Prehistory Branch and the Central Circle of the Survey, represented respectively by Dr. R. V. Joshi and Shri M. D. Khare, undertook excavation at the Adamgarh hill, containing rock-shelters and overlooking the town of Hoshangabad on the southern bank of the Narmada. The shelters are well-known for their paintings and for the occurrence of palaeoliths and microliths in their neighbourhood. In all, eighteen trenches, numbered ADG-1 to ADG-18, were laid, some in the shelters and some in their close vicinity.

The earliest finds were palaeoliths comprising handaxes, cleavers, ovates, discoids, scrapers, flakes and cores showing predominantly Acheulian characters (pl. XX). The occurrence of flakes and cores in the same deposit indicates that the tools were made on the spot. In a typical section in ADG-6, they were recovered from a layer composed of angular fragments and blocks of the local rock mixed with red lateritic clay (fig. 2; pl. XXIA), which itself rested on a lateritic gravel devoid of any implements and even the raw material. A few sections, depicting the laterization of the sandstone and quartzite, the erosion of laterite and the formation of lateritic gravel and clay, were noticed on the northern slope of the hill (fig. 3; pl. XXII A).

The digging at ADG-1 revealed three layers (fig. 4; pl. XXI B) : a surface-despoit of loose, pale-brown earth, measuring 2 to 5 cm. in thickness; a conformably underlying 10-cm. thick layer of pinkish sandy material incorporating small fragments of sandstone; and a layer of black sticky clay mixed with large angular debris of sandstone. Similar stratigraphy was also noticed at ADG-10 and ADG-12 (pl. XXII B). In all these trenches, the top two layers did not yield any important finds save a few pieces of glass and glass bangles and fragments of chalcedony. The black clay, on the other hand, yielded hundreds of microliths and their raw material (pl. XXIII) in the form of nodules of chert, jasper, chalcedony and agate, implying local manufacture. The tools comprised simple, backed and saw-edged blades, lunates, points, awls and a few burins. A few potsherds and bone-pieces were also obtained from the uppermost part of the black soil.

The black soil which rests with a marked unconformity on the laterite or its gravel and clay, is probably a wind-blown deposit derived from the adjacent plain and, since the microliths were found at all its levels, it seems to have been in the process of formation and deposition throughout the period of the microlithic habitation on the hill.

In trenches ADG-2 (pl. XXIIB) and ADG-7, which lay under the cave-like shelters, both the tool-industries were encountered : the lowest levels comprising red clays yielded palaeoliths, while the upper layers consisting of black or dark brown soil produced microliths.

16. EXPLORATION IN DISTRICTS HOSHANGABAD, JABALPUR, MANDLA, NARSINGHPUR AND SHAHDOL.—Shri D. Sen of the Department of Anthropology, University of Calcutta,

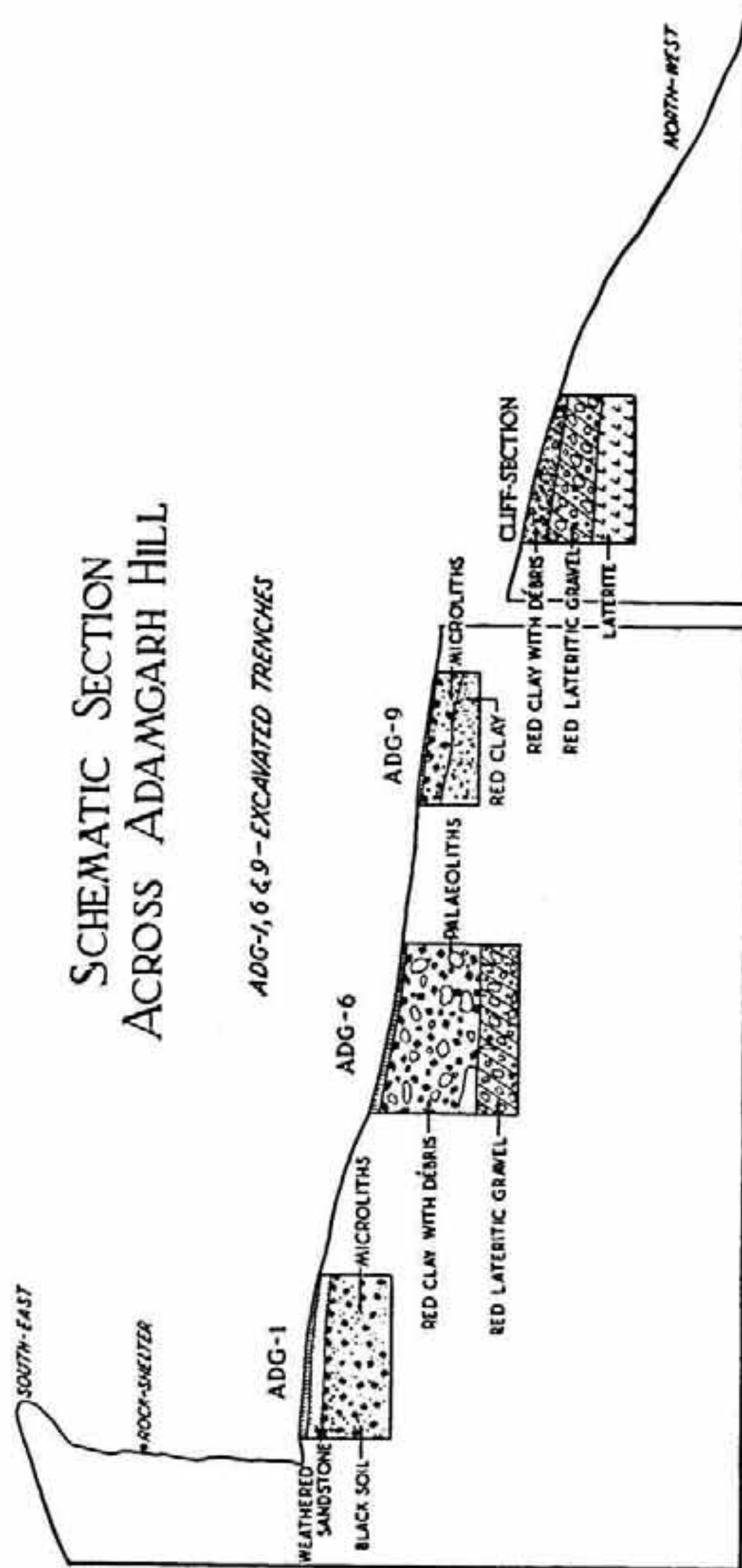

SCHEMATIC SECTION
ACROSS ADAMGARH HILL
ADG-1, 6 & 9—EXCAVATED TRENCHES
SOUTH-EAST
ROCK-SHELTER
ADG-1
WEATHERED SANDSTONE
BLACK SOIL
MICROLITHS
RED CLAY WITH DÉBRIS
RED LATERITIC GRAVEL
ADG-6
PALAEOLITHS
ADG-9
MICROLITHS
RED CLAY
CLIFF-SECTION
RED CLAY WITH DÉBRIS
RED LATERITIC GRAVEL
LATERITE
NORTH-WEST

FIG. 3

assisted by a party of research students, explored the Narmada valley from Amarkantak to Hoshangabad, a stretch of about 640 kilometres.

No artefact or fossil was found near Amarkantak, perhaps because the sedimentary deposits are very scanty. However, further downstream, at Manot, were observed gravel-deposits bearing a few scrapers.

At Mandla, 25 kilometres downstream from Manot, the Narmada is comparatively wide and the valley proper may be deemed to begin from this point. The most notable site in this region was Bahmni, on the banks of a tributary called the Banjer, where a large number of stone implements were collected from gravel and silt-deposits.

From amongst the sites explored further downstream, in Jabalpur District, particular mention may be made of Bheraghat, Lametaghat and Tilwaraghat, some of which, besides yielding fossils and tools, revealed interesting geological sections containing conglomerates, gravels and clays characteristic of the pleistocene sedimentary cycle of central India. The fossils were mostly of the mammalian order, particularly of the *Equus, Elephas, Bos, Sus,* etc. The tools from the lower deposits (Lower Narmada Group) comprised handaxes, cleavers, choppers and scrapers, while those from the upper levels (Upper Group) consisted mainly of flake-blades. Besides, microliths were obtained from the *regur* which caps many of the river-sections.

Mention here may also be made of the sites of Nimkhera, Saliwara, Sakri and Kas-tara, which, being situated on the ancient land-surface of the Deccan Trap, away from the main river, are quite different in respect of surface-geology, geomorphology and archaeology from the aforementioned sites on the river-sections. Due to long weathering, the country-rock has, at places, disintegrated and decomposed into reddish ferruginous soil. The result is an undulating land-surface formed by reddish and, at places, yellowish soil inter-spersed with chunks and boulders of colloidal silica, like jasper, flint, chert, chalcedony, agate, etc., which occur as veins or lumps in the trap. Made on this readily-available raw material, the tools comprise tabular blades, etc., ascribable to a rather late stage in the Stone Age.

In Narsinghpur District, Devakachar, Ratikarar and Barmanghat were amongst the more interesting sites. Here the sections were generally similar to those mentioned above in Jabalpur District. The clays and cemented gravels yielded a large number of artefacts and mammalian fossils.

A few flake-and blade-tools were collected from Jhilpiparia, Sandia and Seoni, all in Hoshangabad District. Some fossil-remains, which included long bones and teeth of the mammalian order, were also collected from the basal conglomerate at Sandia and Seoni.

At Hoshangabad, the already-known sites on the Tawa-Narmada confluence and on the left bank of the Narmada near the bridge and along the bathing-*ghats* yielded a good collection of stone implements and fossils.

Further downstream, below the village Dongarwara, on the right bank, a section yielding handaxes, cleavers and flakes was discovered.

The exploration showed that De Terra's observations on the stratigraphy of the middle Narmada valley were generally correct, although there are certain significant discrepancies such as the following. (1) The gravel-bed below the so-called *regur* does not occur in many sections. (2) At places, the *regur* is underlain by a layer of yellowish cross-bedded sandy alluvium. (3) The *regur* should be described as dark-brown to black silty clay; it is not always uniform in colour and texture. (4) At places, *e.g.* Narsinghpur, the basal cemented conglomerate is not seen, the lowest visible stratum being dark-red clay of the Lower Narmada Group. (5) At places, this dark silty clay does not occur in the river-sections. (6) Almost all the strata, specially the red clays and the conglomerate, yield tools as well as fossils. (7) The tools found in the river-sections generally show an


ADAMGARH 1961
SECTION THROUGH MICROLITHIC SITE
SCALE OF 1 0 1 2 METRES
SCALE OF 2 0 2 4 6 8 FEET

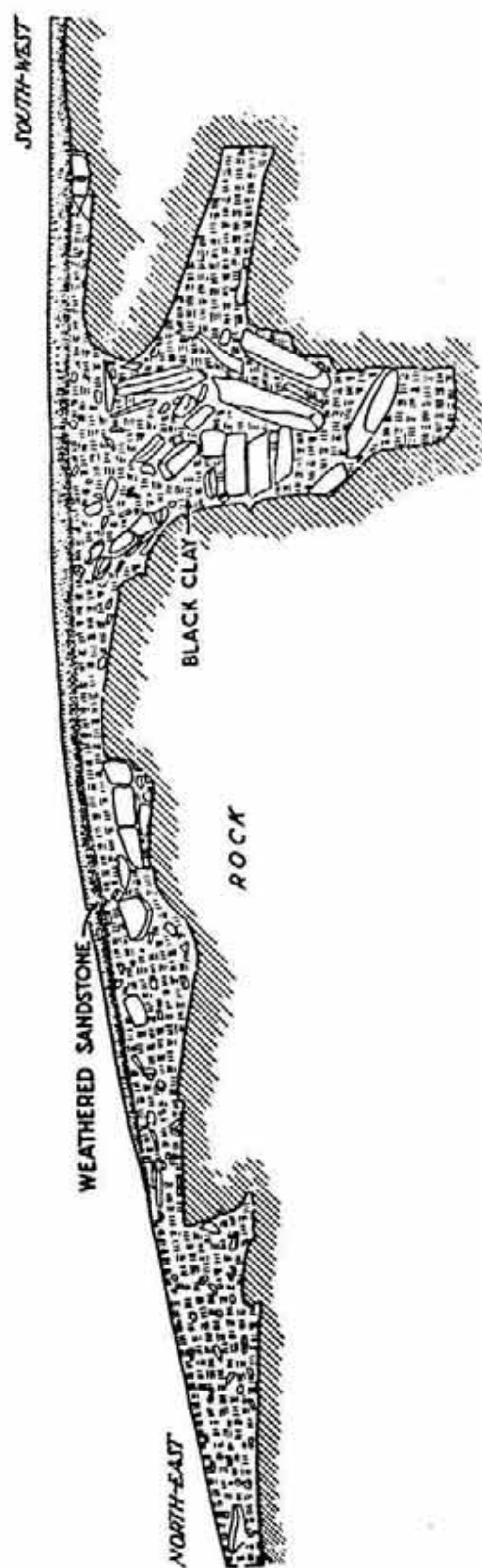

SOUTH-WEST
NORTH-EAST
WEATHERED SANDSTONE
BLACK CLAY
ROCK

FIG. 4

evolutionary trend. Thus, while the Lower Group of deposits yields tools of Abbevilleo-Acheulian types, the Upper Group reveals discoidal cores, a few upper Acheulian bifaces and tools in the Levalloisean technique. The overlying series *(regur)* yields flake-blades and microliths.

In continuation of his earlier work (1959-60, p. 22), Dr. A. P. Khatri also explored the Narmada valley, particularly the pebble tool-bearing horizons of the lowermost red clay. Made on rolled massive pebbles, the tools were noted to be at the base of the handaxe-culture sequence. Fossils of the Quaternary fauna were discovered in two distinct beds. In the lower one, which also yielded pebble tools, was found a well-preserved 2½ metre long tusk of the *Elephas antiquus.* The upper bed contained the *Hippopotamas*, *Equus*, *Bos*, *Bubalus* and *Bison* along with late Acheulian tools made on jasper, chalcedony and fine-grained quartzite. Preliminary studies indicate that the pleistocene fauna survived for a comparatively long time in the Narmada valley, whereas in other areas, such as the Siwa-liks, it perished under the stress of fluctuating climates.

Dr. Khatri also excavated a calcified breccial deposit which, besides being ossiferrous, yielded fresh Acheulian handaxes, cleavers, flakes, cores and hammer-stones. One tool had an 'S'-twist, which is characteristic of the middle Acheulian stage in Europe and Africa.

17. EXCAVATION AT ERAN, DISTRICT SAGAR.—The University of Saugor, under the general direction of Professor K. D. Bajpai, assisted by Shri S. Pandey and Shri U. V. Singh, undertook excavation at Eran (ancient Airikina), situated on the left bank of the Bina (ancient Venva) and surrounded by it on three sides.

Three mounds, called here ERN-1 to ERN-3, were taken up for the operation. Locally known as 'Daunavira' on account of a huge sandstone *linga* standing at its centre, mound ERN-1 rises to a height of 6| metres above the surrounding ground-level. Here a trench, 25.2 x 11.7 metres, was sunk and remains of three Periods were encountered (pl. XXIV). At ERN-2, the largest and highest (11 metres) of the mounds, a longish trench, 34.5x 5.4 metres, was laid in order not merely to obtain a cross-section of the strata but also to ascertain the nature of a stone fortification wall, already noticed in surface-exploration. Herein the remains of an additional Period IV, were encountered, which, incidentally, explains the unusual height of the mound. At ERN-3, situated just on the river-bank, nine 5.4 metre squares were opened up, wherein deposits of Period I and IV were met with. In summary, the overall stratigraphy of the site, from bottom upwards, was as follows : Period I (chalcolithic), assignable to the second half of the second millennium B.C.; Period II, covering a few centuries prior to the Christian era; Period III, covering the first five centuries of the Christian era; and Period IV, from *circa* sixteenth to eighteenth century.

Period I was characterized by the presence of microliths (pl. XXV B) and black-and-red, thick grey and black-on-red wares, the last (pl. XXVI) being mostly of the 'Malwa' fabric. The occurrence also of a few specimens of plain, thin grey ware is noteworthy. A solitary sherd of coarse grey ware had a thick white coating on the exterior. Four sherds of thick grey ware were painted in a light-red pigment with linear patterns (pl. XXVII A, 2, 4 and 8). The other finds included terracotta animal figurines (pl. XXVIII A, 5, 8, 11 and 12), stone, steatite and terracotta beads, fragments of terracotta and shell bangles and a small piece of copper. Except for a roughly-circular fire-pit with slightly raised burnt walls (pl. XXV A), no structural remains of the Period were found. This may, to a great extent, be explained by the smallness of the area of excavation.

In Period II, though no structures were actually encountered, the occurrence of brickbats and stones did indicate their existence. The use of iron was evidenced by a few objects in the metal. The common pottery was a coarse red ware. The black-and-red ware

tradition of Period I continued (pl. XXVII B), but the other wares totally disappeared. Of the Northern Black Polished Ware, a sherd was found in the uppermost level. Other important finds of the Period comprised beads of terracotta, shell, paste and semi-precious stones; a weight of jasper; fragments of shell-bangles; objects of iron and stone; punch-marked and cast tribal copper coins (pl. XXIX); and a circular lead-piece bearing the impression of a die, the legend on which, in Mauryan Brahmi, reads *Rano Idagutasa* 'of king Indragupta' (pl. XXVIII B).

Period III, marked by the disappearance of the black-and-red ware and the emergence of the Red Polished Ware, had three structural phases, the size of the bricks used being 43 x 25 x 7.5 cm. Amongst the notable finds may be mentioned: coins of Ramagupta (both Lion and Garuda types), the Naga dynasty and the Indo-Sassanian rulers (pl. XXIX A); a broken terracotta seal of some Western Kshatrapa ruler; beads of terracotta, glass, shell and semi-precious stones; fragments of shell bangles; objects of stone, iron (pl. XXIX B) and bones; and terracotta animal figurines.

Period IV was noted for the abundance of glass and lac bangles. It was in this Period that the area of occupation came to be restricted, from the river-side (ERN-3) in the north to the end of the present main mound (ERN-2) in the south, where a long stone wall was constructed to provide a fortification for the town. In the latest levels were also found copper coins of the Indian States of Bhopal and Gwalior (pl. XXIX A).

MADRAS

18. EXPLORATION IN DISTRICT COIMBATORE.—In the course of his exploration, Shri V. N. Srinivasa Desikan of the Southern Circle of the Survey found a neolithic celt at Pushpattur on the bank of the river Amaravati. He located cairn-circles at a number of places in Dharamapuri, Avinashi and Erode Taluks. Cists were found at Vilakethi, Pasur, Kongalnagaram and Nattukkalpalayam. Sites with the Russet-coated Painted Ware were discovered at Sircar-Periapalayam, Mukasi-Pidariyur, Vilakethi and Kodumanal, all in Erode Taluk. Urn-burial sites were found in Dharamapuri and Pollachi Taluks.

19. EXPLORATION IN DISTRICT MADURAI.—Shri K. V. Raman of the Southern Circle of the Survey explored the valleys of the Marattar and Vaigai in Tirumangalam and Periakulam Taluks. On the left bank of the former river, near T. Puduppatti, he disco vered an extensive site yielding tools of what may be called an advanced stage of Series II. Made on fine-grained stones like jasper, chalacedony, etc., the tools comprised a variety of flake-scrapers, tanged points, lunates and a unique specimen of double-shouldered arrow head (pl. XXX A). Quite a few fluted cores were also found. Many of the tools show prepared platforms and betray an advanced (Levalloisean) technique of flake-making.

Microlithic sites were located at or near Sivarakkottai, T. Kallupatti, Tidian, Karu-velampetti, Anaikkarapatti, Chennampatti and Krisalkalampatti, located variously on the banks of the two above-mentioned rivers. The one near Tidian, at the foot of a hill, yielded a large variety of tools and appears to be a factory-site. At T. Kallupatti were also found sherds of black and black-and-red wares painted in white pigments with a variety of designs like horizontal and oblique lines, concentric semi-circles, dots, etc. (pl. XXX B). The site also yielded a sherd of black-on-red ware. A neolithic celt and pottery of a late date were also found at Karuvelampetti.

On the bank of the Teni, at Kodangipatti, were found a few neolithic celts with pointed butt and oval cross-section.

At Virachinnammalpuram were noticed, besides the usual cairn-circles, variants of the type in which the outer stones were placed in an oblong fashion, instead of the

circular. Cists were found at Munandipatti and urn-burials at Chennampatti, Kuraiyur, Krisalkalampatti, Pudur and Kottaipatti, all in Periakulam Taluk. At Pudur was also located an extensive habitation-site with the Black-and-red and Russet-coated Painted Wares. Another habitation-site with the Black-and-red Ware was found at Salippapil-laiyarnattam. The Russet-coated Painted Ware was also found at disturbed sites, such as Mudalakkampatti and Araattampatti on the Vaigai.

MAHARASHTRA

20. EXPLORATION IN DISTRICT AHMADNAGAR.—In the course of his explorations in Rahuri and Parner Taluks, Shri B. P. Bopardikar discovered the following important sites and monuments, assignable to different periods.

Sites with tools of Series II and microliths were located at Astagaon, Baburdi, Chi-kalthan, Daithangunjale, Daradgaon, Gadirgaon, Ganjibhovaro, Gunore, Hange, Jambhali, Javale, Kohokadi, Kurund, Mhase-Khurd, Mungse, Nighoj, Rayatale, Rui Chat-trapati, Shahajapur, Shrisule, Sirkanegaon, Thadi, Vadner-Budruk, Vaghunde-Khurd and Walwane, of which Daithangunjale and Kohokadi appear to have been factory-sites.

Microliths, possibly of chalcolithic association, were collected at Chikalthan, Daradgaon, Gatewadi, Jambhali, Jategaon, Mahisgaon, Palwe-Khurd, Sirkanegaon, Sultanpur, Tarabad and Thadi. At Astagaon, Babund, Gadirgaon, Ganjibhovaro, Gatewadi, Goregaon, Gunore, Hatalkhindi, Javale, Kohokadi, Kurund, Lonikolyachi-Haveli, Mhase-Khurd, Nighoj, Rayatale, Rotegaon-Gerpal, Rui-Chattrapatti, Vadner-Budruk, Vajewade and Valwane were picked up sherds of thick grey ware. At Vajewade, a neolith was also found.

Early historical sites, characterized by black-and-red and red wares, were noticed at Astagaon, Bhalaumi, Daradgaon, Ganjibhovaro, Gatewadi, Honga, Jategaon, Lon-dikolyachi-Haveli, Mahisgaon, Nighoj, Palwe-Khurd, Rayatale, Sirkanegaon, Sultanpur, Thadi, Vadner-Budruk, Vaghunde-Khurd, Valwane and Wavrat.

A rock-cut cave, consisting of a *mandapa* (6½ x 4 metres) and a *garbha-griha* (2 x 18 metres), was discovered at Hatalkhindi. A 2 metre high crudely-carved image flanks the entrance of the *garbha-griha,* wherein is an empty niche in the southern inner wall.

Sculptures of Gaja-Lakshmi, Siva-Parvati and Vishnu and temples, all of early medieval period, were discovered at Hange, Ganjibhovaro, Bhalauni and Malkup.

Dr. H. D. Sankalia examined the stretches of the Pravara between Nevasa and Pravara-Sangam on the one hand and between Nevasa and Chinchban on the other. In the former stretch were found several tools of Series II, while in the latter were revealed microliths from a late deposit. To the east of Nevasa, close to Hathi well, was observed a 1-mile long deposit containing tools of Series II. The height of the deposit indicated the corresponding terrace-level.

21. EXCAVATION AT NEVASA, DISTRICT AHMADNAGAR.—Dr. S. B. Deo and Shri Z. A. Ansari of the Deccan College Post-graduate and Research Institute, Poona, assisted by Dr. G. G. Majumdar, Dr. M. S. Mate, Shri S. N. Rajguru and students of the University of Poona and by interested scholars from Bombay and Baroda, resumed (1959-60, p. 25) excavation at Nevasa, under the general guidance of Dr. H. D. Sankalia.

As reported earlier, there were six Periods in all, of which two related respectively to the early and middle palaeolithic age, while four ranged from the chalcolithic times to those of the Marathas. This season's work yielded additional information regarding the latter four Periods, more especially the chalcolithic and the Muslim-Maratha.

The part of the Ladmod mound overlooking the Pravara revealed extensive remains of the chalcolithic habitation, in the form of painted pottery, a little over a hundred human burials, copper objects and traces of lime-floorings. Though no detailed evidence regarding the set-up of the houses was available as the area had been much disturbed and eroded, the observations made last year, namely that the houses were oblong on plan, had walls of bamboo-screen plastered over with mud and contained wooden posts driven into the floor, were duly confirmed. Also brought to light were nine circular or oval pits dug into the natural black soil, evidently by the first settlers of the Period, the length, width and depth varying respectively from 1.2 to 2.7 metres, .9 to 1.5 metres, and .5 to 1.2 metres. In two cases were also noted circular post-holes along the periphery. There was, however, no indication either of any plaster on the sides or of any deliberately-laid floor. Some of the pits yielded sherds of the . Jorwe Ware, while others nothing but silt. Under the circumstances, it is difficult to say if the pits were used as dwellings or not.

Ascribable also to the lowest levels of the Period were several oblong (75 x 90 cm.) or oval (diameters 84 cm. and 79 cm.) *kunda*-like constructions, located sometimes right on the lime floor. With a depth of about 25 cms., the *kundas* had clay-plaster on the sides, which had turned red due to long contact with fire. In the centre there was invariably a clay cylinder capped by a flat stone, which too had been exposed to fire. The contents of the *kundas* comprised white ash and burnt clay-clods. While the use of these *kundas* cannot definitely be stated, it is just possible that they were used for some ritualistic purpose.

Within the Period seven occupation-levels were identified, the cultural equipment of which, however, remained unchanged but for the fact that, as stated above, pits with post-holes and *kunda*-like constructions occurred only in the earliest level. The pottery, mainly of the Jorwe Ware, included, besides the usual shapes in that Ware, fragments of the hollow stem of the dish-on-stand. This, incidentally, indicates the existence, as also the degree, of a cultural infiltration from the Malwa region into the Deccan during the Period.

This season, thirty-four burials, all but two of children, were exposed. In the child-burials the following features were noted. The burials were not necessarily on the house-floor. Only in three cases was the pit-line noted, from which it may be surmised that the urns were just kept on the ground and covered with earth. The orientation was north-to-south but for a few cases where it was east-to-west or north-east-to-south-west. Some of the urns were covered with spouted vessels or carinated bowls or flat-based, flaring-sided pots. If the child was somewhat grown-up, as many as three urns were used. The other funerary pottery included bowls, high-necked jars and spouted vessels, numbering up to fourteen. Lastly, even though the burials were scattered throughout the habitation-area, their concentration was noticeable close to the river.

As to the remaining two burials, one related to an adult and the other to a pair of grown-up boys (pl. XXXI A). The boys were so close to each other that they must have been buried together in one process. In all these cases, the portion below the ankle was not extant—a feature also noticed in the adult skeletons excavated earlier at the site as also in the skeletons dug up recently at Chandoli (below, p. 26). It is, however, premature to generalize that the cutting off of the concerned portion was a necessary feature of the funeral ritual.

The copper objects of the Period included beads, leg-rings and a celt (pl. XXXI B). Though smaller in size than those from Jorwe, the celt is akin to them in being oblong on plan and in having a slightly convex cutting-edge and a flat butt.

That the site was deserted after the chalcolithic period is proved by the occurrence of a weathered layer (established to be so by chemical analysis carried out by Dr. G. G. Majumdar) between this and the following Period, IV.

Of Period IV, early historical, dating from the second century B.C. to the beginning of the Christian era, an area measuring 54 x 43.5 metres was excavated. It was confirmed that pebbles and clay or alternate beds of black clay and silt were used for house-foundations. The floors were made of hydraulic lime, sometimes mixed with hemp. The size of some of the rooms was 2.95 X 2.63 or 2.58 x 3.25 or 3.5 x 2.42 metres, while the bricks measured 48 x 27 x 9 cm. Each house had a brick soak-pit, there being sometimes even two. The pottery included bowls and dishes in the black-and-red ware. Amongst the other finds, mention may be made of : beads of carnelian, agate, bloodstone, etc.; monochrome bangles and rings of glass; sickles, knives and spear and arrowheads of iron; and animal toys, mother-goddess figurines and *makara*-amulets (pl. XXXII A) of terracotta. Also found were coins of the Satavahanas.

In close succession to the early historical Period came the Indo-Roman Period, which may be dated from the close of the first century B.C. to the end of the third century A.D. During this Period, however, the normal size of the rooms diminished to 1.8 x 2.7 metres and that of the bricks to 38 X 18 x 5cm. The foundation-trenches were filled with alternate layers of black clay and pebbles. The pottery comprised the Red Polished, Black-and-red and Rouletted Wares and included specimens of the amphorae. Amongst the other finds were beads of semi-precious stones and glass, terracotta figurines, iron objects and ivory handles, besides a terracotta *chaitya* (pl. XXXII B) and a stone plaque (pl. XXXII C). The *chaitya* was square on plan, each of the four vertical faces having, in relief, a railing motif surmounted by the *dharma-chakra* and other Buddhist symbols. At the corners were *sala-bhanjikas* in applique. On stylistic grounds, the *chaitya* is ascribable to *circa* second century B.C., though it was found in a comparatively late level. The stone plaque, in Gupta style, depicted a *nandi* and *ganas.*

Of Period VI, two structural phases, both earlier than those encountered last year, were exposed. Amongst them all, the earlier of the two dug up this season was the most elaborate and extensive. Ascribable to it was a house made of kiln-burnt bricks (size32 x 20 x 6cm. and 34 x 22.8 cm.) and comprising four rooms, an antechamber and a large open verandah. It was enclosed by a wall of huge undressed stones, the overall measurements of the complex being 17.25 x 9.75 metres. Within the rooms and the antechamber was a filling of pebbles over which were noted a few patches of hard brown clay mixed with gravel, representing presumably the flooring. The floor of the verandah was made of, besides rammed clay and gravel, huge slabs of stone. At one end in the verandah was channel, about a metre in width, cut into four horizontal stone slabs placed close to one another in a row. The sides of the channel were further raised by fixing a series of vertical slabs on to the horizontal ones by means of tenons and sockets. Close to this channel but at a slightly higher level was a smaller channel, lined with bricks. A flat slab of stone placed nearby might have been used for bathing.

An item of particular interest was a 'safe' carved into a block of stone, the dimensions of the interior being 33 x 36 x 25 cms. The mouth was covered by another stone which had a slight projection on the under-surface for proper fitting. The safe was embedded in the pebble-filling, the uppermost course of pebbles coming right over it. Thus, each time the safe was used, the uppermost pebble layer had to be cut through and subsequently replaced. It may be added that the practice of having such under-floor 'safes' is current in some villages even today.

Associated with these structures were glazed bowls (fig. 5) and dishes, Bahmani coins and hundreds of polychrome bangle pieces.

The entire complex, more particularly the massive enclosure wall, reminds one of a *garhi* or a big *wada,* characteristic of the Muslim-Maratha times.

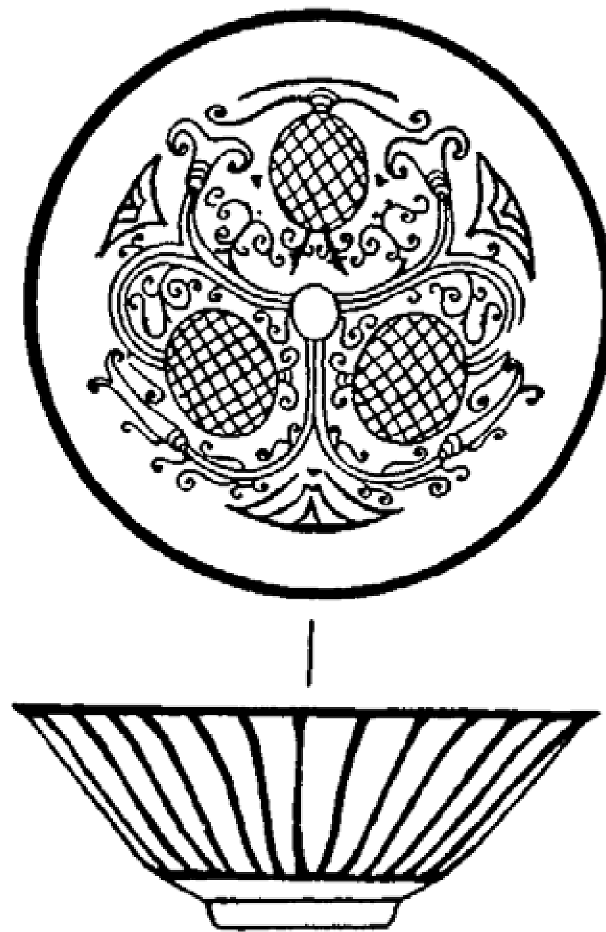


FIG. 5. *Nevasa : glazed bowl.* (-J)

22. EXPLORATION IN DISTRICT BOMBAY SUBURBAN.—Dr. H. D. Sankalia, assisted by Dr. G. C. Mohapatra and Shri V. N. Misra, re-examined the Kandivli area. Two sections, assignable respectively to a higher and a lower terrace, were discovered. The lower ter race seems to be the result of re-deposition by a small stream which flows from the hills towards the west. In both the sections tools of chert and flint-like jasper were found, which, however, did not include any handaxe or cleaver. It was also observed that the concerned section which had been divided into many sub-groups by Todd and Malik could not really be done so. At the most, two divisions were possible, both yielding tools of Series II. The hillocks at Kandivli, as also at Madh and Yerangal Point, are full of microliths and tools of Series II. These sections were also examined by Professor F. E. Zeuner, who was of the view that there were only two and not several deposits.

23. EXPLORATION IN DISTRICT CHANDA.—Continuing his earlier work (1959-60, p. 31), Shri L. K. Srinivasan of the South-eastern Circle of the Survey discovered a number of prehistoric sites in the basins of the Wardha and Wainganga rivers. Of these, two are of particular interest inasmuch as they yield a succession of lithic industries right from the pebble chopper stage up to the microlithic.

One of them is near Papamiya-Tekdi, 5 kilometres north-east of the Chanda town. Here bifacial pebble choppers and Abbevilleo-Acheulian handaxes and cleavers (fig. 6) were picked up from the exposed gravel-beds of the Jharpat, a tributary of the Wardha. Similar tools were also found *in situ* in a rubble-conglomerate bed in a left-bank section of the same river. In the same section, from the uppermost gravel, overlying a thick deposit

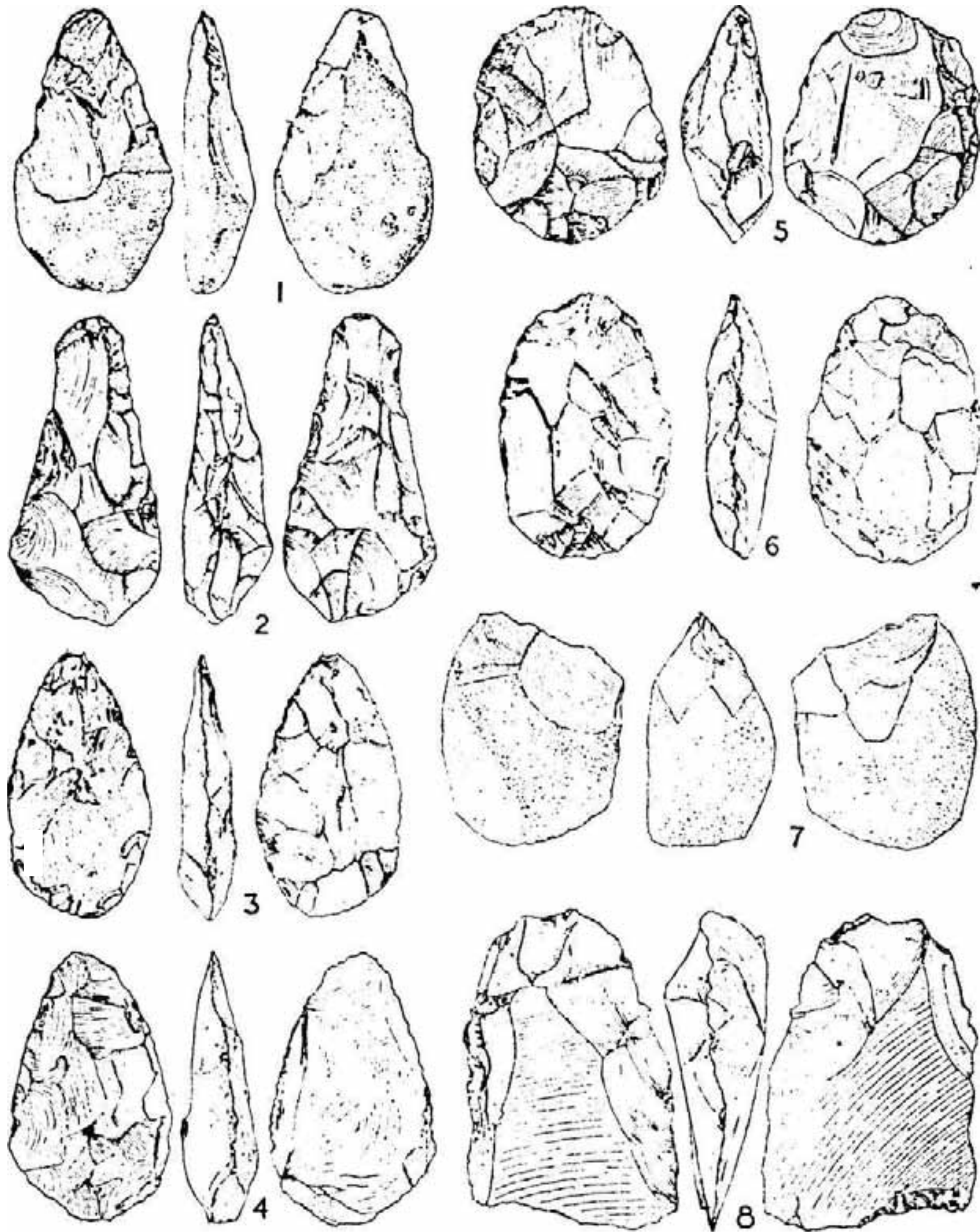


FIG. 6. *Papamiya-Tekdi : tools of Series I.* (¼)

of silt, were picked up scrapers, borers and diminutive axes, ascribable to an early stage of Series II. One of diminutive axes, worked on a pebble, is particularly noteworthy. From the surface of the same gravel came blades, scrapers, burins, awls, etc., representing a blade-and burin industry (fig. 7). Latest in the series, the microlithic industry included parallel-sided blades, backed blades, points, lunates, crescents and fluted cores. It may also be added that the raw materials used for the blade-and-burin and microlithic industries were the same, viz. chert, carnelian, agate, chalcedony, jasper, vein-quartz, etc. The site was singularly devoid of pottery.

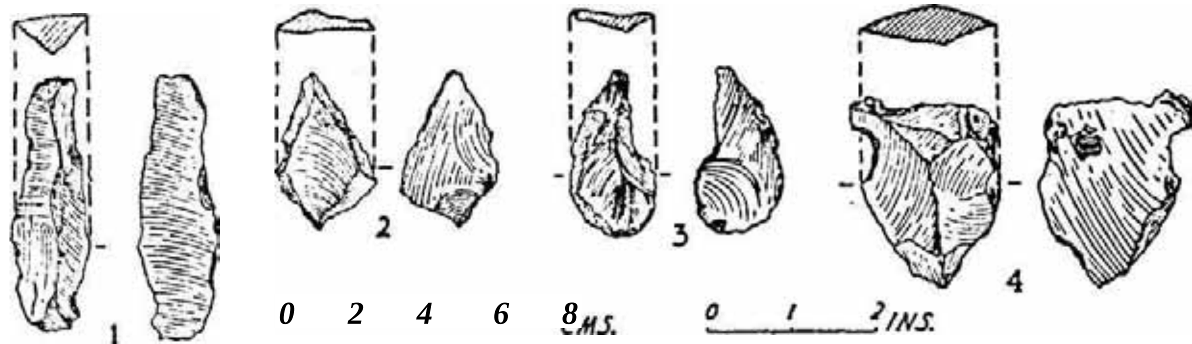


FIG. 7. *Papamiya-Tekdi : tools of Series II*

A similar succession of lithic industries was noticed at Jhari-Mangml also, on the Bhadga *mullah* in the Wainganga basin. The nullah-sections revealed a series of deposits of which the lowest was a gravel-conglomerate. In the exposed gravel-bed were found bifacial pebble choppers and Abbevilleo-Acheulian handaxes and cleavers. On the surface of the topmost reddened gravel were picked up tools of Series II as well as of the blade-and-burin industry. Those of Series II included not merely the usual scrapers and borers but also diminutive axes worked on quartzite and silicious stones. Microliths were also obtained from the site, which included, besides the usual types, a blade-*cum*-point, a double-pointed awl and a flake, triangular in section, with a wavy (crested ?) ridge. This site too was totally bereft of pottery.

Other palaeolithic sites were located near the following villages: Ambeneri, Belgaon-Bhoyar, Bhatala, Bothli, Chichghat, Chikli, Dabkaheti, Kemjai, Khaparla-Khurd, Khapri, Mahalgaon, Minjhari, Paradpar, Rengabodi, Sonegaon, Sumthana, Titwi, Umri, Urkud-par (fig. 8), Usegaon (fig. 8), all in Warora Tahsil ; and Kudholi (fig. 8), in Garchiroli Tahsil. At Dabkaheti, Khaparla-Khurd, Khapri, Mahalgaon (fig. 8), Minjhari, Titwi and Umri, the tools were extracted from well-exposed gravel-sections. Besides handaxes and cleavers, the tools included a few unifacial choppers. It may, however, be added that some of the unifacial specimens were made on flattish pebbles, in which cases bifacial chipping was perhaps not an absolute necessity for obtaining a working-edge.

Sites yielding microliths were noticed near Khandala, Peth-Bhansuli and Wowala, all in Warora Tahsil, Chak-Vithalwada in Chanda Tahsil, and Rajura in Tahsil of the same name.

Megalithic stone circles were discovered near Dongargaon in Garchiroli Tahsil, and Chak-Vithalwada and Kukud-Chimda in Chanda Tahsil. A menhir was noticed near Ravi in Garchiroli Tahsil.

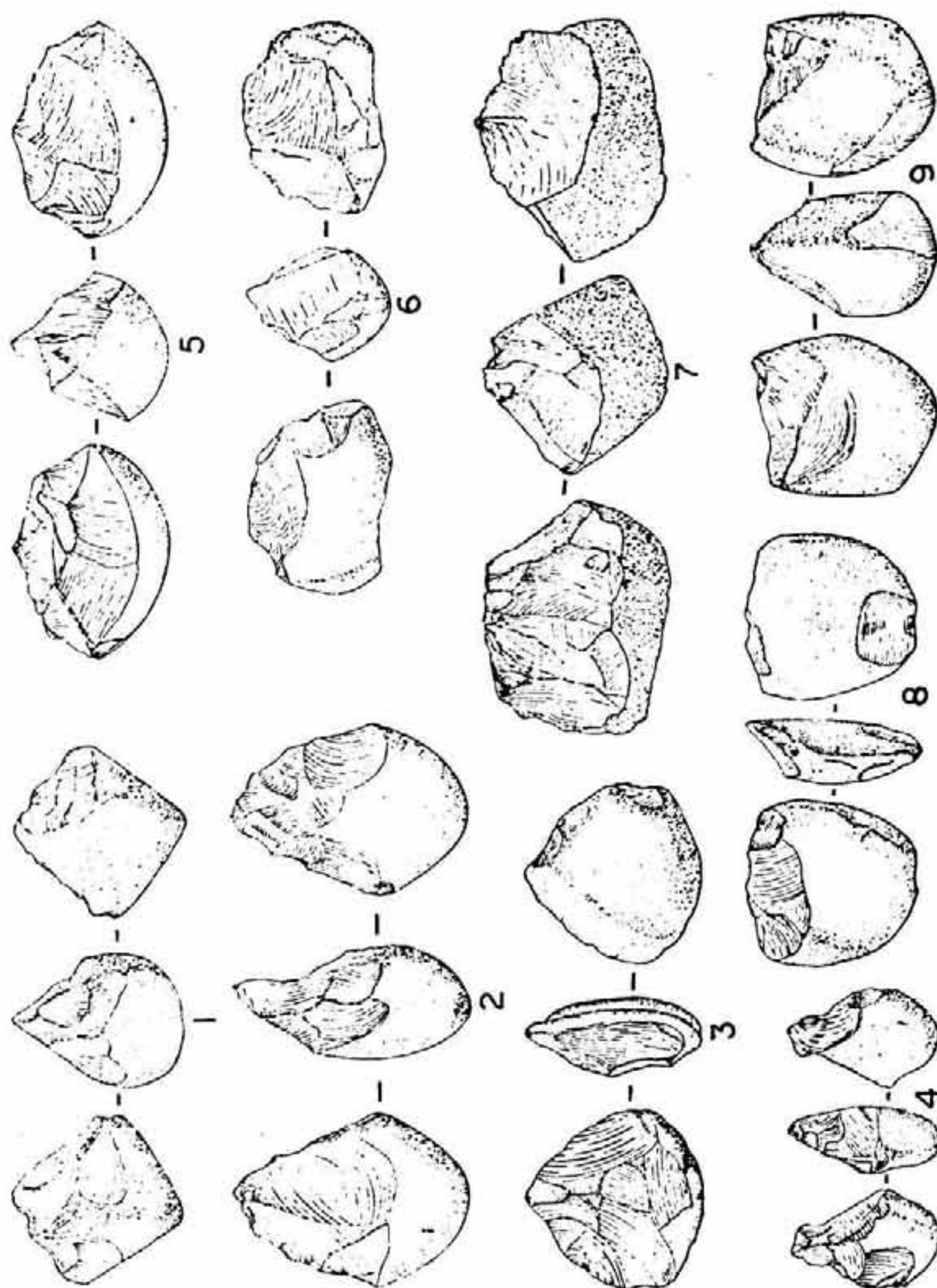


FIG. 8. *Tools of Series I. Kudholi:* 1 *and* 8; *Mahalgaon* : 2, 5 *and* 9; *Usegaon* : 3; *Urkudpar* : 4; *Khapri* : 6; *Papamiya-Tekdi*: 7. (⅓)

24. EXPLORATION IN DISTRICT DHULIA.—In the course of his explorations, Shri S.A. Sali of the South-western Circle of the Survey noticed several cliff-sections in the upper reaches of the Amaravati, from Thanepada to Balvand. From bottom upwards, the more important deposits were : yellowish brown clay, fine reddish gravel and yellow silt. At Mandal, two palaeoliths, a small ovate of the late Acheulian type and a flake were recovered from the junction of the yellowish brown clay and fine reddish gravel. Tools of Late Stone Age were found in the reddish gravel in five other places. At three places, microliths, made chiefly on jasper and comprising scrapers, cores, backed blades, parallel-sided blades, points, etc., were obtained from the yellow silt.

At Bhana, Champala, Nagsar, Nandurbar, Shetti and Talvad-Khurd, Late Stone Age and microlithic tools were found respectively in the fine reddish gravel and the overlying yellow silt. Fossilized animal bones were also picked up from the gravel at Talvad-Khurd.

Series II tools were collected from the gravel-bed of the Tapti at Siyalpurpada.

Late Stone Age tools were collected from the fine gravel at Hat-Mohida, Jharalipada, Kaltolambipada, Kakarda, Khaparkheda, Kharadipada and Sindganhan, and microliths from the yellow silt at Hat-Mohida, Kakarda, Koparkhed and Koparli.

Open camp-sites yielding large, irregular as well as fluted cores, blades, scrapers, points, etc. (pl. XXXIII A) were located at Nagsar, Ranala-Khurd, Shirvad, Vadjakhan and Umajacha-pada. Palaeoliths were collected at Akhatvada, Bhamer, Thanepada, Umarda-Khurd and Vaghale Balaurapada.

From cultivated fields at Hal-Buduki, Junmohida, Kanalda, Nandurbar, Sindganhan, Thanepada and Vaghoda small-sized tools, assignable to a late palaeolithic stage, were collected.

Microliths, pre-chalcolithic in character, were collected at Akhatvada, Banderpada, Bhaler, Dhandod, Jaklipada, Kaltolambipada, Khandvali, Khairela, Nagaon, Nagsar, Ojharda, Ranjala, Sangirpada, Thanepada and Vikhran.

Chalcolithic habitation sites with microliths and black-on-red and burnished grey wares were discovered at Balvand, Bhamer, Bhona, Dhandod, Khaparkheda, Mandal, Nashinda, Ranjala, Tilali and Tisi. Neolitic flakes and hammer-stones were collected at Bhamer. Balvand, Bhona, Borala, Jalvad-Khurd, Khaparkheda, Mandal, Nashinda and Tisi yielded chalcolithic burial-remains.

At Ranjala was discovered a pit-burial containing, besides fragmentary human bones, typical megalithic pottery, such as the conical bowl, stand, dish, etc., in the Black-and-red or all black wares (pl. XXXIII B). No megaliths, however, were encountered. All the same, the occurrence of undoubtedly megalithic pottery so far north as the Tapti valley is indeed interesting and makes the area worthy of further investigation. Black-and-red Ware sherds, in association with bones, were picked up at Shetti also.

Sculptures of Vishnu, Siva-Parvati, Bhairava and Varaha, all of early medieval period, were noticed at Nandurbar.

25. EXCAVATION AT CHANDOLI, DISTRICT POONA.—Dr. S.B.Deo and Shri Z.D. Ansari, assisted by Dr. G. G. Majumdar and generally guided by Dr. H. D. Sankalia, all of the Deccan College and Post-graduate Research Institute, Poona, undertook excavation at Chandoli-Khurd, on the bank of the Chod, about 4 kilometres from Manchar, where surface-exploration had (1957-58,p.67) brought to light evidences of a chalcolithic occupation.

The excavation confirmed that it was only a single-culture site, the maximum thickness of the habitational deposits being only about a metre. Not much structural evidence was available. However, large lumps of clay mixed with hay and bearing impressions of bamboo-screens and poles threw light on the mode of construction of the walls, which,

incidentally, was similar to that noted at Nevasa and Navdatoli. Also noticed were patches of hydraulic lime-flooring, occasionally with circular post-holes. On the floor were located oblong or circular *kunda*-like constructions, within each of which stood a clay cylinder capped with a flat, anvil-like stone. The contents of the *kundas* comprised white ash, charcoal, lime and burnt clods of clay. Big jars of coarse red fabric were used for storage. Also noticed were semi-circular hearths of clay having a diameter of about half-a-metre.

The pottery comprised six main wares—the Jorwe, red-painted and plain grey, coarse red, Malwa, cream-slipped and black-and-red—of which the last two are interesting inasmuch as they have not so far been reported from Nevasa (above, p.20). In the Jorwe Ware, by far the commonest at the site, the types included the carinated bowl, spouted vessel with carinated or rounded body, basin, high-necked globular jar, vessel with constricted neck, etc. A specimen in the first-named type, having acute concave sides, is reminiscent of similar bowls from Ahar. Further, as at Nevasa, here too were found fragments of the base, stem, etc., of the dish-on-stand in this Ware. The designs, painted in black, pertained mostly to geometrical patterns, the few exceptions being antelopes and motifs resembling mountains and trees.

In the Malwa Ware were repeated most of the shapes found at Navdatoli : the pan, goblet, globular vessel, vessel with flared mouth, and knobbed lid. There were also a few fragments of the channel-spout. In addition, mention may be made of two types in this Ware, not found at Navdatoli: the vessel with tubular spout and the legged stand.

Most of the cream-slipped ware lacked the fineness of surface so characteristic at Navdatoli. Further, the shapes were also limited to the high-necked jar and globular vessel. The designs, executed in black, comprised plam-leaves, concentric circles and banners.

Twenty-four urn-burials, similar to those at Nevasa, were exposed. Of these, all but two were of children. In the case of a child-burial was found a threaded necklace of small, barrel-shaped beads of copper with a central bead of red jasper, which, again, was reminiscent of a thread necklace from Nevasa. Of the two adult-burials, one consisted of three globular jars having diameters of 60 cm., 48 cm., and 40 cm., respectively. The jars were placed on sides in a north-south alignment in such a way that the two northern ones faced each other, while the southernmost one capped the apertured bottom of the middle one. The skeleton, which lay mostly outside the jars, bore burn-marks on the face and skull—a feature not observed so far at Nevasa. However, as at Nevasa (above, p. 20), the bones below the ankle were absent in both the adult skeletons.

The other finds included microliths and a variety of objects of copper, stone and terracotta.

The microliths comprised parallel-sided and pen-knife blades, lunates with crude retouch and a few trapezes and triangles.

The copper objects included : two chisels with levelled edge and square section (pl. XXXIV, 5 and 6); a celt with straight sides and slightly-convex edge (pl. XXXIV, 1); leg-ornaments, and a dagger having leaf-shaped mid-ribbed blade and a long antennae-ended tang (pl. XXXIV, 2). The dagger, it may be added, is the first of its kind so far found in India in a stratified context.

The stone objects comprised huge querns with concave top, anvils, mace-heads and hundreds of sling balls. Besides, there was a polished celt of dolerite, rather worn out due to use (pl. XXXIV, 3).

Amongst terracotta objects, mention may be made of oval lamps, wheels, perforated discs and a bottle in the form of a bull, the legs, hump and tail being applied to the hollow body(pl. XXXIV, 4). The last-named item is reminiscent of similar 'effigies' or theriomorphic pottery vessels from Hissar and Sialk.

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MYSORE

26. EXPLORATION IN DISTRICT BIJAPUR.—In the course of his exploration in Sindgi and Muddebihal Tahsils, Shri A. Soundara of the South-western Circle of the Survey discovered microliths at Salvadgi, Matkandevanhalli and Kutchbal. The assemblage included fluted and other cores, scrapers and parallel-sided blades, some of the last-named specimens having the crested guiding-ridge. At Salvadgi were also found sherds of thick grey ware.

Chalcolithic habitation-sites, yielding the Jorwe Ware, grey ware similar to that of Brahmagiri, microliths and polished stone axes, were traced at Baglur, Baur, Bilebhavi, Gundaknal, Hulagbal, Ingalgeri, Kaldevanhalli, Kumshi, Mailesvara, Minajgi and Talikot. Burial-sites of the same culture were discovered at Kaldevanhalli and Hulagbal.

Megalithic stone circles were found at Madnahalli, Maskanal, Salvadgi and Talikot. One of the exposed stone circles at Maskanal revealed that the eastern orthostat of the cist (3.5x 3.2 metres) had an external passage, about 1½ metres in length.

Early historical sites, characterized by the Black-and -red and red-slipped wares were noticed at Salvadgi, Baur and Devangaon. At Baur was also collected a sherd of the Russet-coated Painted Ware.

Temples and sculptures of Vishnu, Parvati, Paramesvara, *sapta-matrikas, naga,* Virabhadra, Kala-Bhairava, Gajanana, Surya and Lakshmi-Narayana, all of the early medieval times, besides *viragals* and *sati* sculptures, were noticed at Shirshagi, Kumshi, Devangaon, Kadlewad, Devarnavadgi, Talikot, Baur and Hulagbal. The temple at Ka-dlewad is noteworthy for its extensive dimensions, plannng, graceful sculptures and inscriptions.

27. EXPLORATION IN DISTRICT DHARWAR.—In the course of his exploration in Ranebennur and Shirhalli Tahsils, Shri M.S. Nagaraja Rao of the South-western Circle of the Survey discovered: palaeoliths at Konchigeri, Nalwagal and Nadiharalhalli; microliths at the two last-named sites; chalcolithic remains, yielding the Jorwe Ware, ware of Brahmagiri affiliation and polished stone axes, at Kowlet and the two sites just referred to; megalithic stone circles at Malkanhalli, Kamdod, Hosur, Jangad and Belgatti and a dolmen at Bellatti; and early historical remains with the Russet-coated Painted Ware at Airaini, Bellatti, Chodhal, Hirevidare, Itga, Itagi, Mangod, Nagarmadu, Tangadu and Unkli.

Temples assignable to the tenth and eleventh centuries were noticed at Itagi, Nadiharalhalli and Karur. According to an inscription in its *mandapa,* dated Saka 1090 (A.D. 1168), the Somesvara temple at Nadiharalhalli was originally a Jaina *basti* constructed by Nagagamunda and his wife, Aranga-mundi.

28. EXPLORATION IN DISTRICT MYSORE.—Shri C. Krishnamurti of the Southern Circle of the Survey found microliths at Hebsur, Yaragamballi and Gumballi, all in Chamarajanagar Taluk. Neolithic remains were found at : Boodi-Tittu, Sivakalli, Komaranapura and Purani in Yelandur Taluk; Telnur and Palya in Kollegal Taluk; Kuttalavadi and Hemmige in T. Narasipur Taluk, and Hosahalli in Chamarajanagar Taluk. The sites in Kollegal Taluk yielded burnished brown, red and black-and-red wares. The Russet-coated Painted Ware was found at Ambale, Goudrahalli and Devarahalli in Yelandur Taluk, Hemmige in T. Narasipur Taluk, and Nallur in Chamarajanagar Tauk.

ORISSA

29. EXCAVATION AT RATNAGIRI, DISTRICT CUTTACK.—In continuation of previous years' work (1959-60, p. 36), the Eastern Circle of the Survey, under Shrimati D. Mitra,

undertook a limited excavation in the area to the south of Monastery 2 and Temple 1, in order to expose two half-buried sculptures and examine the structures in which they had been installed.

Immediately to the south of Temple 1 and in alignment with it was unearthed another, contemporary, brick temple, Temple 2 (pl. XXXV A), also facing west. Closely analogous to the former, Temple 2 had a *sapta-ratha deul.* The square *jagamohana*, however, was not a part of the original scheme, as it had been built against the finished front wall of the *deul.* Only the lowest two mouldings, *khura* and *khumbha,* of the vertical wall were extant. Below the *khura* was, as in Temple 1, a ledge like *upana* consisting of a series of high offsets. Again as in Temple 1, the *jagamohana* was approached by a flight of four steps of stone. The floors of both the *jagamohana* and the *deul* were made of rammed brick-grits and earth, while the frame of the door in between them, of which a sill-fragment was found *in situ,* was of stone. Amidst the debris were found : oblong brick *bhumi-amlas;* plain and carved *khura-shaped* bricks, presumably belonging to *chaitya*-windows; discs and a shaft forming parts of a brick *chhattravali;* moulded bricks, presumably of a circular drum; and fragments of a brick *khapuri.* Thus, it is evident that, like Temple 1, Temple 2 also had a *gandi* of the usual Orissan type, the crowning elements above the *khapuri* being a *stupa.*

In the area to the south of Temple 2 were revealed a small brick temple, Temple 3, and plinths of a few other structures. Facing west and fronted by a narrow *antarala,* Temple 3 was *tri-ratha* on the front and *pancha-ratha* on the remaining three sides (pl. XXXV B). Internally 1-28-metre square on plan, it was available to a maximum height of 43 cm. above the ledge-like *upana.* The door-frame was of stone. Against the back wall was found a moulded stone pedestal. Fragments of a few images were recovered from the floor and the tops of the extant walls, as also from the ground adjacent to the north-eastern corner of the temple.

The area to the south of Monastery 2 revealed three brick temples, numbered 4 to 6, besides a large number of *stupas* of various sizes (pl. XXXVI A). Temple 4, *tri-ratha* on plan, was available to a maximum height of 1 metre above the floor-level. The central projections on three sides carried *khura*-mouldings, the remaining portion of the temple remaining plain. Despite its small dimensions, the temple was notevyorthy on account of three large presiding images of khondalite, which occupied the major portions of the three walls (pl. XXXVI B). The image in the back (western) wall was that of Vajraraga-Manjusri, seated in *vajra-paryankasana* on a double-petalled lotus (pl. XXXVII A), while those in the northern and southern walls were respectively of Vajradharma-Lokesvara (pl. XXXVII B) and Vajrasattva, in their characteristic poses. The images of Vajraraga and Vajradharma were inscribed with the Buddhist creed in characters of *circa* tenth century.

Located immediately to the north of Temple 4, Temple 5 was a plain, square structure, with a brick enclosure around it None of the stones of the door-frame was found *in situ.* However, the sill and the lowest portion of the dexter jamb could be restored with the stones found nearby. The inner facet of the jamb depicted a standing *naga* holding a garland. Inside the sanctum was found a highly artistic, 2.34-metre high, khondalite image of a two-armed standing Manjusri, having, on either side of the legs, a female figure (pl. XXXVII C). The image was inscribed with the Buddhist creed in characters of *circa* tenth century. At the north-eastern corner of the enclosure lay a fine sculpture of Vajraraga in the company of eight Bodhisattvas (pl. XXXVII D).

Temple 6 consisted of a *deul, pancha-ratha* on plan, and a porch, the latter, however, being a later addition. Of the walls of the *deul,* only four courses above the basement had survived. Placed against the back wall was a moulded *tri-ratha* pedestal of stone, bereft, however, of any image.

As stated above, a large number of *stupas* were exposed in this area. Of these, one hundred and twenty-five were *in situ,* while others lay dislocated in fragments. The *stupas* were either monolithic or structural. Among the latter, masonry *stupas* far outnumbered those of brick. Of the largest amongst the brick *stupas,* only the *tri-ratha* base and lower portion of the moulded drum were preserved. The drum was provided with four projections, facing the cardinal directions. Each projection had a niche, of which the jambs and base were of stone. In the northern niche was found an image of Amoghasiddhi.

Amongst the stone *stupas,* three formed a class by themselves inasmuch as they represented a style not in full conformity with that prevalent at the site. The best-preserved of them is illustrated on pl. XXXVIII A. In each of the four central projections of its sloping base was a staircase which gave access to the narrow terrace around the drum. The remaining part of the base was relieved with a set of *khura, noli* and inverted *khura* in the lower section and with a second set of *khura* and inverted *khura* towards the top. On the middle portion was a row of *khumbhas,* one on each *paga.* The remaining portion of the *stupa* was similar to that of the usual type, except that the drum had four pilasters, one at each corner. Executed in high relief, which gave them the appearance of pillars, the pilasters had a *ghata*-base and tapering round shaft. The capital, consisting of a lioness on an elephant, rested on an oblong abacus, the latter, in turn, resting on a *ghata* with a pedestal below. On each side, between the pilasters, was a niche which contained an image of a Dhyani-Buddha. Of the four images of Dhyani-Buddhas, those of Ratnasambhava and Amoghasiddhi were found *in situ,* while those of Akshobhya and Amitabha were recovered nearby from the debris. In the medallion of the *chaitya*-window over, each niche was the *sakti* of the corresponding Dhyani-Buddha.

Most of the remaining *stupas* had in their niches the effigies of deities. While in most cases the effigies were carved on the stones of the *stupas* themselves, in a few they were done on detachable slabs. The latter were generally fixed into the niches with iron nails.

The area also yielded a few loose sculptures, most of which had evidently occupied the niches of the *stupas* now dislocated. Particularly noteworthy amongst these sculptures were those of an eight-armed and three-headed goddess (Ushnishavijaya ?) (pl. XXXIX A), Jambhala ?) with the *sakti* in his lap (pl. XXXIX B) and. Durgottarini Tara (pl. XXXVIIIB), lying on the right middle ground).

Excavation at the spot where, many years back, had been found a set of three copperplates recording the grant of a village by the Somavamsi king Kama (end of the eleventh and beginning of the twelfth century) to Rani Karpurasri hailing from the *mahavihara* of Salonapura led to the unearthing of two phases of a brick structure of three cells fronted by a verandah (pl. XL A). The ceiling of the cells in the second phase was spanned by semicircular arches. Beyond the back walls of the cells were found a few stone channels, similar to those used in the drains of Monastery 2.

The loose architectural fragments found at different heights amidst the debris in front of the shrine of Monastery 1 (1958-59, p. 33) were pieced together in the western part of the paved courtyard of the monastery. It now transpires that the fragments pertain to an impressive facade of the shrine. Measuring over 8.7 metres in length and 3.3 metres in height, the facade was remarkable for its luxuriant surface-treatment (pl. XL B). It consisted of a central door on each side of which were three large framed niches, evidently meant for images. Crowning the door was also a niche, while the side-niches carried over them elaborately-moulded superstructures.

RAJASTHAN

30. EXPLORATION IN DISTRICTS AJMER, BARMER, BHILWARA, CHITORGARH, PALI AND UDAIPUR.—In continuation of his previous years' work (1959-60, p. 39), Shri V. N. Misra

of the Deccan College Post-graduate and Research Institute, Poona, re-visited, with Dr. H. D. Sankalia and Dr. B. Subbarao, a number of sites in these Districts for a stratigraphical check-up. To the previous observations on the stratigraphy of the rivers in eastern and western Rajasthan it should be added that in the latter area the silt-phase was followed by one of large-scale deposition of wind-blown sand. In the former area, the two deposits occurring ubiquitously are the gravel-conglomerate and silt, but an examination of the sections of the Banas and Berach, respectively at Bigod and Chitorgarh, indicates that the possibility of there being a second gravel in these rivers should not be ruled out. In fact, the area requires a more intensive study than has been undertaken so far. This year, a flake was found *in situ* in the gravel to the south of the Nathdwara town. Several implements were also found *in situ* at Bigod and Chitorgarh. At the latter site were also found three loose artefacts of Series II in the bed of the Berach. A large collection of tools of Series II and microliths was made at Dhaneri in Pali District.

Shri Misra also completed a detailed study of the material collected during previous years, which indicates that, so far as Rajasthan is concerned, the Lower Palaeolithic culture was concentrated in the eastern region i.e. east of Chitorgarh. Westwards, in spite of considerable search, only a few stray implements have been found: they come from District Udaipur and from a site near Govindgarh on the Sagarmati in District Ajmer. Thus, western Rajasthan seems to have come under active occupation by man only at a late stage, that is when he had started manufacturing tools similar to those of Series II. This tool-assemblage, however, included some late Acheulian handaxes, and a few choppers and scrapers technologically recalling the pebble tools of the handaxe-cleaver culture. The discovery of two sites, by Shri N. M. Ganam, as far west as Banner points to the possibility of the existence of more sites in Jaisalmer and Banner Districts.

31. EXCAVATION AT KALIBANGAN, DISTRICT GANGANAGAR.—In connexion with the training of its students, the School of Archaeology of the Survey, under the direction of Shri B. B. Lal, assisted by Shri M. D. Khare of the Central Circle, and Shri K. M. Srivastava and Shri S. P. Jain of the Exploration Branch, carried out an excavation at Kalibangan, already known as belonging to the Harappa culture. Apart from the purpose of training, the site was taken up for excavation first to find out if, in this area, there was any variation from the true Harappa culture and secondly to determine the pattern of the habitation itself, for a superficial survey had indicated that the site consisted of two closely-situated yet separate mounds, the larger one to the east and the smaller one to the west.

Located on the left bank of the Ghaggar (ancient Sarasvati) river, usually dry but occasionally flooded (pl. XLI A) owing to the release of excess water from a dam upstream at Sirsa, the mounds rise to a maximum height of 12 metres above the surrouding ground-level and cover an overall area of a quarter square kilometer.

The exacavation revealed that, as at Harappa and Mohenjo-daro, a definite system of town-planning had been followed at Kalibangan. The houses were oriented roughly along the cardinal directions (pl. XLI B), as a result of which the streets and lanes ran approximately north-south and east-west. Built mostly of mud-bricks (size 30 x 15 x 7½ cm.), which were placed in regular courses of headers and stretchers (pl. XLII A) and often bore mud-plaster (pl. XLIV A), the houses, though not completely excavated yet, seem to have comprised, besides a courtyard, at least four or five large-sized rooms along with a few smaller ones. On the exterior were sometimes added small mud platforms (?) having mud-brick facing (pl. XLIV A). The floors, usually of rammed clay, were provided with a soling of terracotta nodules (commonly called 'cakes') interspersed with sizable bits of charcoal (pl. XLII B). (In the neighbouring areas a similar practice is followed even today to make damp-proof the floor as well as the lower parts of walls). Occasionally, a part of

the floor was also paved with either burnt bricks, or, as noticed in one case, fragments of flat triangular terracotta 'cakes' (pl. XLIV B), evidently to prevent it from getting slushy due to the water that was expected to fall there. For the disposal of sullage-water, according to necessity and expediency, burnt-brick drains (pl. XLIII A) or soakage-jars (pl. XL11I B) were provided. In most houses were also noticed oval fire-places, the exact use of which, however, remains to be determined. In one case, the presence of a few wooden rafters embedded in mud suggested that they might have supported, with the cushioning of reeds, etc., a flat mud-roof, such as is made in the region even now. No roof-tiles were obtained.

While the larger (eastern) of the two mounds was found to contain successive remains of ordinary houses starting right over the natural soil, the smaller mound revealed a massive mud-brick platform over which towered the relevant buildings. It is guessed that the latter mound perhaps represents a citadel, the location of which vis-a-vis, the general habitation-area, incidentally, is similar to that of the citadel-mounds of both Harappa and Mohenjo-daro. Thus, if these two cities were the provincial capitals of a big empire, it is not unlikely that Kalibangan was a third one, commanding the ancient Sarasvati valley.

Amongst the material found in the excavation, the pottery deserves special mention. Besides the typical Harappan ware, plain as well as painted (pls. XLV and XLVI), there also occurred pots (pl. XLVII) which had an unslipped dull red fabric painted over in black pigment with a broad and/or a series of narrow bands subjoined or intervened by loops, along the neck and shoulder. Occasionally, the bands were supplemented with fronds, hatched ovals, segments or triangles. These pots occurred in abundance in the lower levels but diminished considerably in number in the upper. From their co-occurrence with the typical Harappan pottery on the one hand and the level of their occurrence on the other, it appears that they formed a part and parcel of the Harappan complex in its earlier stages but went out of vogue in the later. Such an inference seems to find a support from the fact that similar pottery had been obtained from the pre-defence levels at Harappa and from the lower levels of Kot-Diji (considered by the excavator as proto-Harappan). To get a clearer picture of this evolution, however, much more evidence, including that from other industries, is necessary.

The other finds were all typical of the Harappa culture. For example, there were the steatite seals with some inscription and, often, an animal figure on one side and a perforated knob on the other (pl. XLVIII A) ; impressions of such seals on clay, fired or otherwise, which also bore on the opposite side impressions of reeds and knotted twine (pl. XLVIII B) ; potsherds bearing one or more symbols of the Harappan script, some of which also threw light on the direction of writing (pl. XLIX A) ; beads including segmented ones of faience, etched ones of carnelian and disc-shaped ones of steatite (pl. XLIX B) ; terracotta figurines of animals, birds and human beings (pi. L and Cover), of which a human head (Cover) is reminiscent of a similar specimen from Mohenjo-daro ; bangles of terracotta, faience, and shell (pl. LI A) ; blades, plain or serrated, cores and weights of chert (pls. LI B and LII) ; gamesmen of chert and terracotta; and implements of copper.

UTTAR PRADESH

32. EXPLORATION AT SANKARA, DISTRICT ALIGARH.—Shri R. C. Gaur of the Muslim University, Aligarh, explored, amongst other sites in the District, the mound of Sankara, about 32 kilometres east of Atrauli, the Tahsil headquarters. Located on the west bank of the Ganga, the mound measures about a kilometre east-west and half-a-kilometre

north-south and rises to a maximum height of about 20 metres above the river-bed. It is cut into two major parts by a road leading to the *ghat* on the river.

An exploration of ravine-sections indicated, from bottom upwards, the following sequence of cultures. In the lowest levels were found fragments of bowls and dishes of the Painted Grey Ware. Fine-as well as coarse-grained, the collected specimens were mostly wheel-turned and well-fired and varied in shade from light-to dark-green. The succeeding levels yielded such pots of red ware as are generally found elsewhere associated with the Northern Black Polished Ware, although no sherd of that Ware was noticed. The next higher levels yielded pottery, terracottas and other antiquities assignable to the Sunga-Kushan period. Further up in the section were found remains of the Gupta period. Thereafter seems to have occurred a temporary desertion of the site. Re-occupation was represented by structures which could be assigned to *circa* ninth-twelfth centuries. The latest occupation of the site was represented by the remains of a fort, made of *lakhauri* bricks, in the eastern part of the mound, which could be assigned to *circa* fifteenth-sixteenth centuries.

The finds included, besides pottery, terracottas, beads, etc., a few beautiful sculptures, one of which is of particular interest. Made of red sandstone and assignable to the Sunga period, it represents a woman holding a child in her arms. The skilful hair-do and facial expression are very impressive.

33. EXPLORATION AT ALLAHABAD.—The University of Allahabad, under Shri G. R. Sharma, discovered several ancient sites in the city of Allahabad, of which the following deserve special mention : (1) Draupadi-ghat ; (2) the site on which are now situated the Sir Tej Bahadur Sapru Hospital and adjoining bungalows ; (3) Chilla and Govindpur ; (4) Salori ; (5) Bharadwaj-Asram ; and (6) Dariabad and Mirapur.

Enclosed by Panappa and Balmiki roads, the mound at the Draupadi-ghat yielded evidence of extensive habitation. In a 15-metre high section cut by the Ganga were noticed several terracotta ring-wells (pl. LIII A) and a few burnt-brick walls (pl. LIII B). The pottery included specimens of the Northern Black Polished Ware and of the red ware usually associated with it. A few potsherds pointed to a date prior to that of the N.B.P. Ware.

The second mound yielded similar pottery-evidence.

At Chilla and Govindpur traces of ancient habitation were noticed in an area measuring over 2 square kilometres. From a section cut by a modern road were obtained the N.B.P. Ware, its associated wares and a sturdy black-on-red ware similar to that reported from Onaur and Unchadih (1959-60, p. 46).

The deposits at Salori, having a thickness of about 3 metres, yielded pottery similar to that found at Chilla and Govindpur.

Surface-exploration of the fifth site—a 6-metre high mound, yielded pottery, e.g. bowls, sprinklers, etc., which can be dated to the Kushan period. If excavated, the lower levels might yield earlier remains.

At Dariabad and Mirapur, on the left bank of the Yamuna, were collected, in large quantities, sherds of the N.B.P. Ware and red and grey wares.

34. EXCAVATION AT KAUSAMBI, DISTRICT ALLAHABAD.—The University of Allahabad, under Shri G. R. Sharma, continued (1959-60, p. 46) excavation at Kausambi and brought to light a stone palace. Situated on the bank of the Yamuna, in the south-western corner of the ancient walled city, the palace-complex occupied an area of 315 x 150 metres. The distinguishing feature of the area, prior to the excavation, was the occurrence of small chips of stones which literally covered every inch of the ground. Large stones and lumps of lime-plaster lay scattered on the western side of the defences and over a prominent

ridge, about 150 metres in length, running east-west. Towards the Yamuna, two small but prominent mounds, covering an overall area of about 75 x 45 metres, are included within the complex. The western of these mounds incorporates a strongly-built tower, which, overlooking the river, has diameters of respectively 11 and 12 metres at the top and bottom (pl. LIV).

The excavation exposed the northern and parts of the eastern and western walls, all of stone set in fine lime, of the, palace, which, indeed, looked like a fortress. It was revealed that for the erection of the walls, the level of the ground had been raised by putting up a 2½ -metre high platform of mud and mud-bricks. The northern wall (pl. LV A), measuring about 130 metres in length and 6 metres in width, was joined at the eastern and western, ends by two return-walls (pi. LV B), there also being, at each junction, a circular tower having a diameter of about 8 metres. To the northern wall, about the middle of its length, was added, at a subsequent stage, an oblong tower measuring 4½ metres in width and in depth (pl. LVI A).

Inside the palace were excavated only a few rooms ; notwithstanding their limited extent, they showed a systematic planning. For example, a structural complex, opposite the central tower, comprised a hall, flanked on two of its sides by a room having lime-flooring. The walls were covered throughout with lime-plaster of uniform thickness. Each room was provided with three shelves, and the central hall with a flight of steps leading to the tower (pl. LVI B).

As excavated the palace-remains attest to three main phases of architectural evolution. Though the general lay-out remained more or less the same in all the three phases, the walls in the earliest were built entirely of random rubble, huge undressed stones being set in lime-mortar (pl. LVII A). Perhaps the wall-faces were plastered.

In the second phase (pl. LV A), dressed stones, with an average size of 66 x 53 x 20cm., were used for the facings, the core, however, remaining of rubble. The phase, indeed, represents the apogee of architectural excellence.

In the third phase, which followed an extensive destruction of the palace, the walls were no longer built of stone alone. The core was made of bricks, while dressed stones were used for the facings. The corner-towers (pl. LVII B) were rebuilt and enlarged, the longest cross-section of one of them measuring nearly 19 metres. In the case of these towers, the base was of stone, and the upper part of stone and brick, used indiscriminately. Another noteworthy feature of this phase was the use of thick coatings of lime-plaster.

It was observed that the random-rubble walls of the first phase were built prior to the Northern Black Polished Ware. The walls of the second phase came into being immediately after the occurrence of that Ware. The end of this phase was marked by a destruction of the palace. The walls and tower were razed to the ground. There is also evidence of conflagration. The debris-layer yielded, besides sherds of the N.B.P. Ware, a sealing bearing an inscription, *ma(?)ha(?)rajasa(?) A* (?) *sagho...*, in characters of *circa* second century B.C. During the third phase, which witnessed a great building activity, evidently to make up for the destruction, the N.B.P. Ware was on the decline. In the upper levels of the phase occurred certain pottery-types in red ware, which, on the evidence of other early historical sites, may be dated to the beginning of the Christian era. According to the strati-graphic evidence, therefore, the origin of the palace goes back to *circa* 600 B.C., if not earlier. It is, thus, not unlikely that it was occupied by king Udayana, the renowned contemporary of Buddha. It seems to have been deserted after the fall of the Mitra dynasty.

Amongst the small finds from the excavation, particular mention may be made of terracottas which comprised archaic hand-made mother-goddesses, mould-made plaques and late hand-made figurines (pls. LVIII and LIX).

It is generally believed that in India stone architecture commenced with the age of Asoka and that it was only afterwards that wooden forms were gradually replaced in stone. The discovery of this earlier stone palace at Kausambi would, however, set us re-thinking.

35. EXPLORATION AT ATRANJIKHERA, DISTRICT ETAH.—Shri R. C. Gaur of the Muslim University, Aligarh, explored, amongst other sites in the District, the ancient mound at Atranjikhera, located on the right bank of the Kali-Nadi, about 16 kilometres north of the District headquarters. Though the mound is cut up by rain-gullies into several parts, it is evident that the ancient settlement covered an area measuring over 1200 x 400 metres, the thickness of the deposits varying from 6 to 12 metres.

An examination of the rain-gullies revealed that the earliest principal ceramic industry of the site was the Painted Grey Ware. Specimens of bowls and dishes of this Ware, varying in fabric from coarse-to fine-grained, were found in large quantities. The usual motifs, such as simple bands, groups of oblique or criss-cross lines, rows of dots and dashes, etc., were executed in black pigment, but sometimes in reddish brown too. Occasionally, un-painted specimens were also met with. Alongside this Ware also occurred the black-slipped ware, regarded as the fore-runner of the Northern Black Polished Ware. The latter Ware was obtained from the succeeding levels, which also yielded plain and coarse grey were and the associated red ware. From the next higher levels came an exclusively a red-ware industry. The pots, which were all wheel-turned, included the dish, bowl, *handi*, etc. The structures encountered in these levels were made of bricks measuring 33 x 22 x 6 cms. Associated were also two copper coins, both of the Kushan king Vasudeva. The next levels yielded pottery and seals which could be dated to the Gupta and the immediately following periods. From the uppermost levels of the site came glazed pottery and coins, the latter being assignable to early Turkish to the late Mughul rulers.

The antiquities included, besides the coins and seals referred to above, beads, terracotta figurines and sculptures. Among the terracotta figurines, mention may be made of : a head of an Iranian noble, there being two ram-horns (?) on the forehead (pl. LX A) ; a female deity, profusely ornamented and having an upraised coiffure (pi. LX B, left) ; a tiny figure with wigged head-dress (pl. LX B, right); and a medallion enclosing a human bust (pl. LX C). Amongst the sculptures may be mentioned : a red standstone head, probably of Bhairava, ascribable to the Gupta period (pl. LX D) ; a female figure holding a *purna-ghata* ascribable to *circa* sixth-seventh century (pl. LX E) ; and an image of Jambhala with Hariti (?) also belonging to the post-Gupta period (pl. LX F).

36. EXPLORATION IN DISTRICTS HAMIRPUR AND JHANSI.—In continuation of his earlier work (1959-60, p. 46), Shri Rameshwar Singh of the Deccan College Post-graduate and Research Institute, Poona, found two cleavers *in situ* in the gravel of the Shahzad at Lalitpur. Near the Kshetrapala temple at the same place, a gravel-deposit yielded about fifty tools of Series I, of which fifteen were *in situ*. The Bina-Nala, a small tributary of the Shahzad, yielded about two hundred tools consisting of Acheulian handaxes and cleavers. A large number of tools of Series I were also collected at Burwar, Barod and Dhaura. In the bed of the Dhasan at Sihora, Ghat Semra and Hasrai were found tools of Series II. Ascribable to the cemented gravel of the Betwa at Gonchi was a fossil pre-molar. The gravel also yielded a large number of tools of Series II, fifteen of them being *in situ*.

37. EXCAVATION AT RAJGHAT, DISTRICT VARANASI.—The Varanasi Hindu University, under Dr. A. K. Narain, assisted by Shri T. N. Roy, resumed the excavation at Rajghat in order to check up the sequence of cultures brought to light in 1957 (1957-58, p. 50) and to ascertain the nature of the defences. In all, three trenches were dug, one each on the northern, eastern and southern (Ganga) sides.

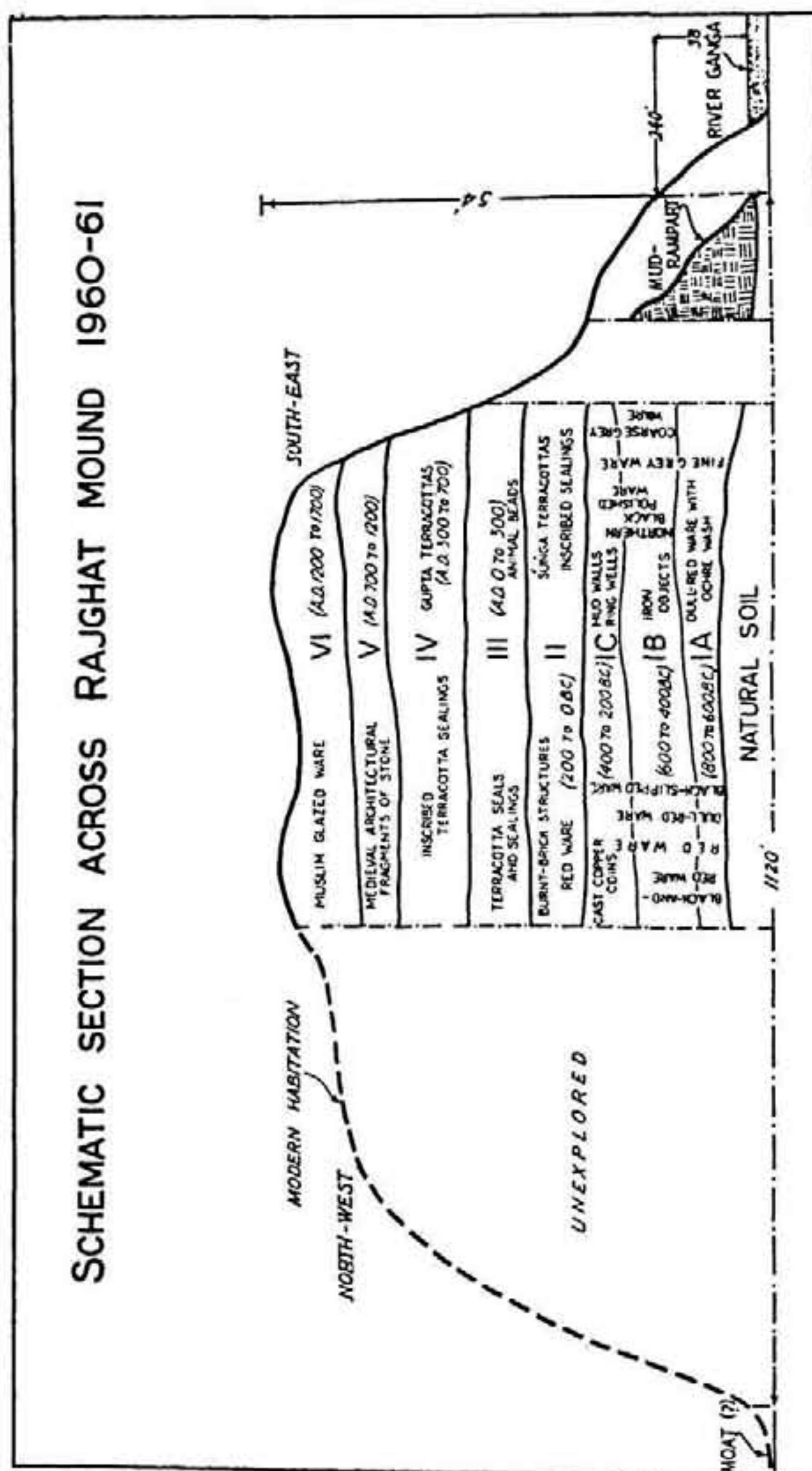

SCHEMATIC SECTION ACROSS RAJGHAT MOUND 1960-61
NORTH-WEST
MODERN HABITATION
MOAT (?)
UNEXPLORED
SOUTH-EAST
MUSLIM GLAZED WARE
VI (A.D. 1200 TO 1700)
MEDIEVAL ARCHITECTURAL FRAGMENTS OF STONE
V (A.D. 700 TO 1200)
INSCRIBED TERRACOTTA SEALINGS
IV GUPTA TERRACOTTAS (A.D. 300 TO 700)
TERRACOTTA SEALS AND SEALINGS
III (A.D. 0 TO 300) ANIMAL BEADS
BURNT-BRICK STRUCTURES
RED WARE (200 TO 0 BC)
II ŚUṄGA TERRACOTTAS INSCRIBED SEALINGS
CAST COPPER COINS
(400 TO 200 BC) I C MUD WALLS RING WELLS
RED WARE
DULL-RED WARE
BLACK-SLIPPED WARE
(600 TO 400 BC) I B IRON OBJECTS
NORTHERN BLACK POLISHED WARE
FINE GREY WARE
COARSE GREY WARE
BLACK-AND-RED WARE
(800 TO 600 BC) I A DULL-RED WARE WITH OCHRE WASH
NATURAL SOIL
1120'
54'
340'
38'
MUD-RAMPART
RIVER GANGA

Fig. 9

It was revealed that the earliest occupation of the site went back to the first quarter of the first millennium B.C., while the uppermost levels could be dated to the seventeenth century. The occupational deposits, ranging from 13 to 15 metres in thickness, were divisible into six successive Periods (fig. 9), the individual datings of which appear to be somewhat different from those suggested earlier.

The most noteworthy discovery of the season was that of an enormous clay rampart bating back to the earliest occupation of the site. Built directly over the natural soil and available to a height of about 10 metres, the rampart has a pronounced slope towards the river. Other details of the rampart, including its correlation with the habitational levels, however, remain to be determined. A series of alternating deposits of sand and silt against the toe of the rampart indicated that it had been breached several times by heavy floods, which also affected some portions of the habitation, where they left vestiges in the form of silt, sand, *kankar* and river-shells.

The earliest Period, I, was further divisible into three Sub-periods, called from bottom upwards I A, I B and IC. Sub-period I A, datable from *circa* 800 to 600 B.C., yielded black-slipped, coarse black-and-red, ochrous red, red and grey wares (fig. 10). The specimens of grey ware had a fine fabric, similar to that of the Painted Grey Ware, though there was no painting. The rampart also came into being during the Sub-period.

Sub-period I B(*circa* 600-400 B.C.), though essentially a continuation of the preceding Sub-period, was marked by the occurence of the Northern Black Polished Ware, which, perhaps, may be regarded as the quality-culmination of the black-slipped ware. The Ware ranged in shade from steel-blue and silvery to golden. The common pottery-types met with during the Sub-period were the bowl with straight, convex or corrugated sides, shallow dish with incurved or straight sides and carinated *handi* (fig. 10). Painted and incised sherds, bearing graffiti in some cases, are also noteworthy (pl. LXII A). The other finds of the Sub-period consisted of beads, terracotta animal figurines and discs and a few objects of iron.

Sub-period I *C(circa* 400-200 B.C.) was marked by a deterioration in the quality, such as the coarsening of the fabric and indifferent finish, of the Northern Black Polished Ware and grey and black-slipped wares. During this Sub-period occurred a number of cast coins of copper, besides beads and terracotta balls. Structural activity was represented by a mud-wall and two terracotta ring-wells.

Period II *(circa* 200 B.C. to the beginning of the Christian era) was noted mostly for its structural activities (pl. LXI). There were two structural Sub-periods. To the earlier Sub-period belonged a house with two rooms, a vestibule, a bath and a well (pl. LXI B). In the latter Sub-period, the well was raised by the addition of a terracotta ring and seven courses of bricks. The floors were repaired or renewed, mostly with clay. The common practice was to lay the floor over a soling of brick-bats occasionally mixed with potsherds and small-sized stone rubble. The whole mass was well-rammed and covered with a layer of clay.

During the Period the black ware came to an end, while the red ware became more prominent. The common forms in the latter ware were the bowl, lipped basin, and inkpot-like lid. Stamped pots and spouts were also recorded. The other finds consisted of inscribed terracotta sealings and a few moulded terracotta human figurines.

Period III (from the beginning of the Christian era to *circa* A. D. 300) was characterized by the occurrence of a large number of terracotta seals and sealings (pl. LXII B). Amongst the names mentioned on them, 'Harishena' is the most common. The other finds included terracotta figurines, disc and flesh-rubbers, balls of stone and terracotta, antimony-rods of copper, bangles of shell, glass and terracotta, and potters' stamps.

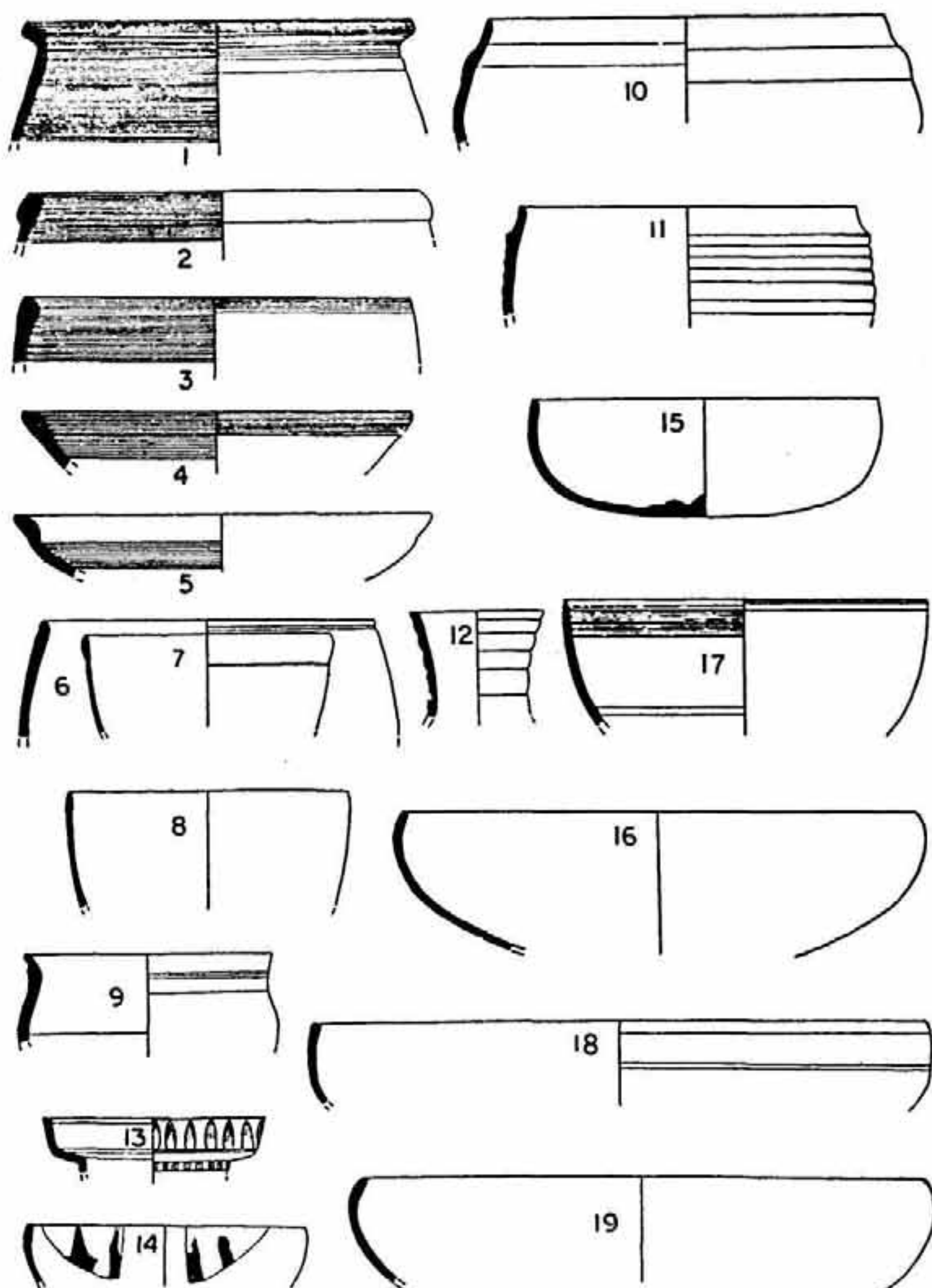


FIG. 10. *Rajghat : ealy pottey-types.* 1-5, *black-and-red ware*; 6-10, *black-slipped ware*; 11-14, *Northern Black Polished Ware*; 15, *coarse grey ware*; 16, *red ware*; 17-19, *grey ware*. (⅓)

Amongst the beads, mention may be made of specimens depicting the crow. The pottery continued to be almost the same as in the preceding Period.

Period IV (*circa* 300-700) was marked by the presence of a red ware in which spouted pots and sprinklers were most noteworthy. Remains of walls were exposed, but no definite plan could be noted. Attention, however, was drawn by a brick-edged platform-like structure, associated with an apsidal structure. The other finds included two sealings, bearing respectively the inscriptions *Pakhikula* and *Govindasvami*, a large number of moulded terracotta human figurines possessing highly graceful features (pl. LXIII A), terracotta gamesmen, stone and copper objects and beads and pendants of glass, agate, jasper, carnelian, etc.

In Period V (*circa* 700-1200) occurred a large number of large and deep pits, which disturbed most of the structures. In the debris were found several architectural fragments, a pedestal with *linga* and sculptures (pl. LXIII B), all of which pointed to the possibility of a Hindu temple in the vicinity.

Period VI (*circa* 1200-1700) was characterized by the glazed ware bearing a variety of floral designs. A floor of lime was also exposed on plan. Two human skeletons, oriented north-south and buried at a distance of about 2 metres from each other, were met with at a late level of the Period.

WEST BENGAL

38. EXCAVATION AT CHANDRAKETUGARH, DISTRICT 24-PARGANAS.—Shri K. G. Goswami continued (1959-60, p. 50) the excavation of the mound of Khanamihirer-dhipi on behalf of the Asutosh Museum of the University of Calcutta.

In the centre of the previously-exposed temple was unearthed some large-sized over-burnt bricks irregularly placed at the top of a cavity, 2.4 x 2.1 metres, probably belonging to a later place of worship, in the middle of an oblong superstructure of five courses of rough bricks and brick-bats on layers of blackish and greyish soil mixed with brick-bats and potsherds (pl. LXIV A). On the removal of the superstructure was exposed a deep pit of polished bricks (pl. LXIV B), 2.3 metres square at the damaged top, its walls, with thirty-seven regular offsets, descending to a depth of over 7 metres, where a paved floor, 86 cm. square, was met with (pl. LXV A). The objects in the filling of the pit included cast copper coins, a fragmentary stone mould, a perforated terracotta object, a terracotta sealing with the design of a peacock sitting on a *torana* and a bone awl. The pottery comprised the Northern Black Polished Ware and plain black and red wares, the shapes represented being : the bowl with everted rim ; carinated lid with flaring mouth and wavy body ; lid with prominent flange at the shoulders ; stand with flanged top and concave neck ; vase with beak-like flanged rim and engraved decoration on the shoulder and angular rib on the belly ; cooking-vessel with flanged rim, wide neck, grooved shoulder and carinated body and with engraved decoration ; casket with carinated body and externally-flanged rim to receive the lid ; basin with slightly-everted rim, round body and ring-base ; vessel with featureless rim and carinated lower part ; and stand with everted rim, flat base and oblique sides.

An extension of the excavation to the north of the temple-area yielded evidences of six Periods of occupation. There was no trace of any brick structure in Periods I to III.

Period I was associated, among other things, with red, grey and black pottery, the typical shapes being illustrated in fig. 11. Notable was the find of fragments of the Rouletted Ware. The other finds included a piece of ivory, a copper awl and a terracotta circular plaque with three pairs of erotic figures.

Period II was characterized by some cast copper coins and a good quantity of pottery (fig. 11). To this Period also belonged the head of a terracotta female figure *(yakshi).*

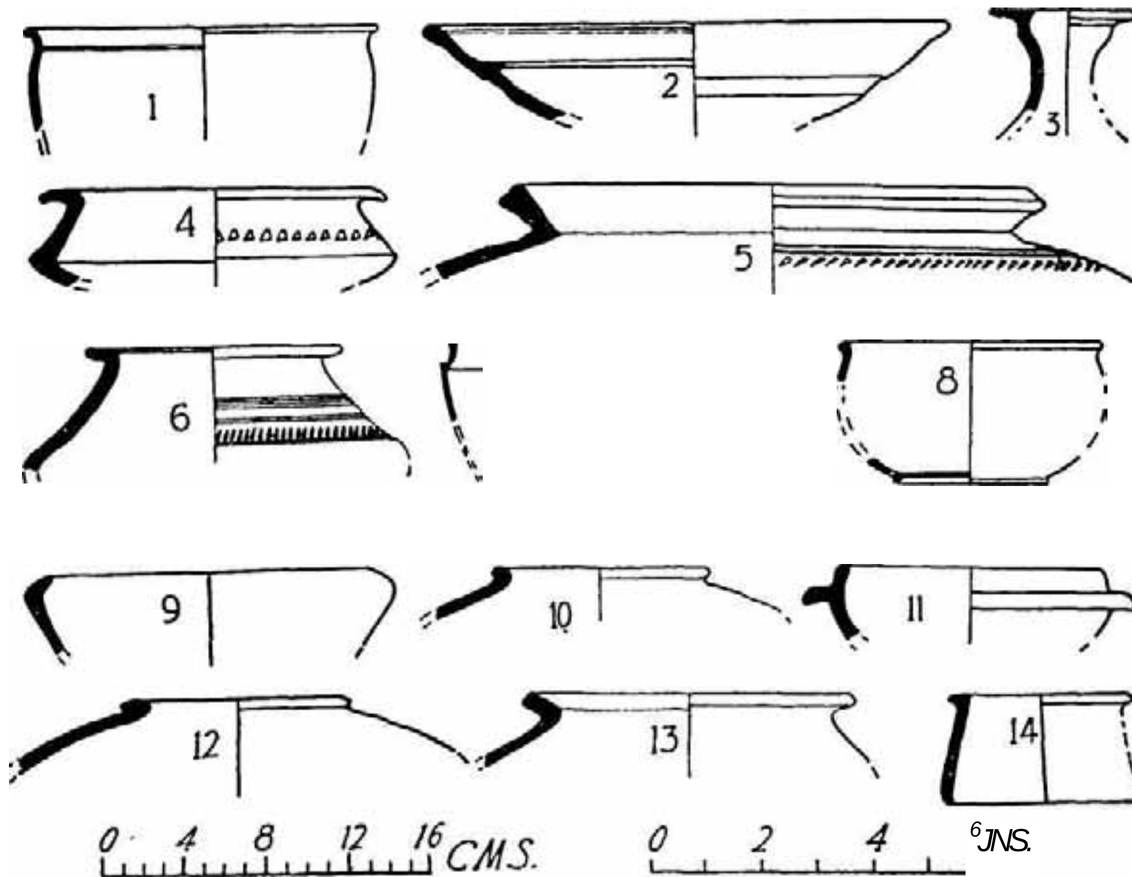


FIG. 11. ***Chandraketugarh: pottery-types***

Period III produced cast copper coins and different types of pottery (fig. 11).

Period IV had a finely-built brick structure of the Gupta period, with half-round and plain mouldings over a series of offsets (pl. LXV B). Besides pottery (fig. 11) were found a terracotta rattle and bird.

Period V—of the late Gupta or post-Gupta age—saw the construction of a rough and massive brick structure covering the building of Period IV, with its foundation starting at a lower level. Beads of agate, carnelian and bone and a terracotta spindle-whorl were among the minor antiquities of the Period.

Period VI had scanty remains of buildings. The adventitious find of a terracotta sealing with the legend *sadada* in Sunga Brahmi in the levels of this Period may be mentioned.

II. EPIGRAPHY

SANSKRITIC AND DRAVIDIC INSCRIPTIONS[1]

ANDHRA PRADESH

1. INSCRIPTION, CHOLASAMUDRAM, DISTRICT ANANTAPUR.—Dated in Saka 1439 (A.D. 1517), the inscription mentions *mahapradhana rayasam* Kondamarasa as the son of Timmarasu and grandson of Sripatyacharya of the Bharadvaja-*gotra* and Rik-*sakha* and records a gift made by him to the goddess Chaudesvari for progeny to his overlord Krishnadevaraya. The officer bears the titles *Simhadri-Srikuruma-jayastambha-karyanirvahaka, Chapannadesa-chitralipilekha-kovida,* etc. A label on a sculpture shows that the latter represents Kondamarasa.

2. INSCRIPTIONS, ISUKAPALLE, DISTRICT CUDDAPAH.—Three inscriptions, in Tamil, bearing dates in Saka 1202, 1205 and 1219 respectively, record endowments of money in *madai* and *panam* to the god Papanasam-udaiyanayanar of Kamachcholanallur in Merpakki-nadu included in Adhirajendra-mandalam, by private individuals, one of whom was Kirandai Ulagavelan Varantaruvan Kuttaduvan Chediyarayan of Tirukkachchiyur in Sengunra-nadu in Kalattur-kkottam. The insciptions do not mention any ruling king.

3. INSCRIPTIONS, STATE MUSEUM, HYDERABAD.—Of these inscriptions the following are of interest : (i) a record dated Saka 949 (A.D. 1027), registering gifts of land, an oil-mill and a flower-garden in *rajadhani* Piriya-Mosangi to a *basadi* by princess Somaladevi, daughter of Jayasimha (II), while she was camping at Pulipodaru; (ii) an epigraph recording endowments to various deities at Gobburu by the *mahajanas* of Hiriya-Gobburu with the approval of *dandanayaka* Anantapalayya in the thirty-third regnal year (A.D. 1109) of Tribhuvanamalladeva (Vikramaditya VI); (iii) an inscription attributable to the reign of the same monarch and mentioning *kumara* Somesvara; (iv) a record bearing a date in the Chalukya-Vikrama era and registering the grant of some villages in the Gukkadamu-30 and Namikamti-70 divisions to Bhimanapeggade and his brother Doddaya-bhatta by *mahamandalesvara* Kanduri Gokarna-choda-maharaja; and (v) an epigraph, dated Saka 1438 (A.D. 1516) in the reign of the Vijayanagara king Krishnadevaraya, recording some royal endowments of land and the remission of certain levies payable to the government by Parvatayya on the orders of *rayasam* Kondamarasayya, probably on the occasion of the king's conquest of Kondapalli.

4. INSCRIPTION, ADAVISOMANIPALLE, DISTRICT KARIMNAGAR.—Engraved in Telugu-Kannada characters of about the eighth century on the facade of a cave-temple in a forest, the inscription refers to the installation of an image of Bhagavati by Ekkala-mahamuni, apparently in the temple. This cave resembles those at Undavalli near Vijayawada.

5. INSCRIPTIONS OF MUSTAFA KHAN, MUSTABADA, DISTRICT KRISHNA.—Dated in Saka 1482 (A.D. 1560), the inscription records the remission, by Khan-e-'Azam Mustafa

[1] Information from: 6 (also the Government Epigraphist for India, whose description has been followed here) and 14, the Director of Archaeology, Andhra Pradesh State; 22, the Archaeologist, Gujarat State; 25, Shri K. D. Bajpai; 36, the Superintendent, South-western Circle of the Survey; 54, the Director of Archaeology, Mysore State;55-58 and 60 the Director of Archaeology and Museums, Rajasthan State; 59, the Superintendent, Western circle of the Survey; 62, Dr. H. D. Sankalia; rest, the Government Epigraphist for India.

Khan, an officer under Qutbu'l-mulk (II) of Golkonda, of taxes like *kamparapu-sunkam, tiru-katnalu, sanchi-paikalu, gollakaram,* etc., levied on members of various communities of Mustabada. Another record refers to the construction of a tank and the plantation of a garden by Narasimha-pandita for the merit of the Khan.

6. EASTERN CHALUKYA COPPER-PLATES, VINNAKOTA, DISTRICT KRISHNA.—Of the three copper-plate charters, two belong to Bhima I (892-922) and one to Ammaraja I (922-29). One of Bhima's grants refers' to the construction of a temple of Siva, called Bhimesvara, at Prayaga by a merchant named Poleyana, who obtained the village of Kakamranu from the king and endowed a part of the same to the temple and the rest to a number of learned Brahmanas. His other charter records the grant of village Moga to Mahadevi, wife of Vijayaditya of the Katakaraja family, out of gratitude for the help formerly rendered by that chief. Ammaraja's charter records a royal grant of the village Penubulugu in Kanderuvadi-vishaya to Sucharitabharana, *alias* Chamyanasarman, who was the king's *samasta-rajya-bharodvahana-paritoshaka,* and another grant of twenty-four *khandikas* of land in Nammiiru to Svami-Kumarasarman. The grants are undated.

7. INSCRIPTION, CHANAGONDLA, DISTRICT KURNOOL.—Dated Saka 1357, Rakshasa (A.D. 1435), the unfinished epigraph mentions king Madhavavarman with epithets such as *Hosabirudaragamda, Mallika-vallabha, Bejavada-puravaradhisvara* and *Suryavamsa-kula-nistaraka.*

8. INSCRIPTIONS, KODUMURU, DISTRICT KURNOOL.—A fragmentary inscription of about the tenth century records the gift of land to a goddess by Lokanavva of Satyasraya-kula, who may be identified with Lokamahadevi, queen of Chalukya Bhima II and mother of Ammaraja. Another record, belonging to Harihara I, the first ruler of the Vijayanagara dynasty, records the grant of land in village Kodumuru situated in Naravadi by *mahamandalesvara* Hiriya Mayideva-Raneya to the god Mallikarjuna on the Sriparvata. Dated Saka 1261 (A.D. 1340), the record is the earliest of this king and his dynasty. A later epigraph, dated Saka 1374 (A.D. 1452), refers to an endowment of land by Chavudarasa, minister of Somana-vayaka of Kurugodu, for the maintenance of a gruel-distributing centre in the village.

9. INSCRIPTIONS, ALAMPUR, DISTRICT MAHBUBNAGAR.—Out of the thirty-three inscriptions that were copied, two, dated Saka 982 (A.D. 1060) in the reign of Trailokyamalla (Somesvara I), record endowments of land made by *Perggade* Devapayya for feeding ascetics, students and musicians, the endowed lands being entrusted for management to Lokabharana pandita and Tribhuvanasakti-pandita, priests respectively of the local Kukkutesvara and Papavinasa temples. An inscription, dated Saka 1221 (A.D. 1299), in the reign of Kakatiya Prataparudra, records a gift of land by Mummadi Brammisetti and other members of the merchant *(balanju)* community of Alampura for the provision of worship and offerings to the local god Bhogesvara. A number of pillars in the Papanasa temple and a few panels on slabs kept in the local Museum depict scenes from the *Ramayana, Mahabharata* and *Panchatantra* with descriptive lables engraved on them in characters of about the ninth century.

10. WESTERN CHALUKYA INSCRIPTION, BICHAPALLE, DISTRICT MAHBUBNAGAR.—Dated Saka 996 (A.D. 1074) in the reign of Bhuvanaikamalla (Somesvara II), the inscription registers the gift of Pariyala on the bank of the Perdore to god Lakshmanesvara of Elarametirtha by *mahamandalesvara* Chiddachola-maharaja while he was returning from a successful expedition against the Seguna.

11. INSCRIPTIONS, MALLESVARAM, DISTRICT MAHBUBNAGAR.—Of these epigraphs two (Saka 955 and 964) belong to the Western Chalukya ruler Jagadekamalla (Jayasimha II)

and one each (respectively Saka 973 and Chalukya-Vikrama 35) to Trailokyamalla (Somesvara I) and Tribhuvanamalla (Vikramaditya VI). They register gifts made to the local temples for specific purposes as follows : by *mahamandalesvara* Anemarasa of Kandur and by *mahamandalesvara* Bhuvanaikamalla Bijjarasa (or Bibbarasa), both in the reign of Jaga-dekamalla; by *kumara* Vijayaditya and Mailaladevi in the reign of Trajlokyamalla; and by *mahamandalesvara kumara TaWapadeva,* sonof Chandaladevi, in the reign of Tribhuvanamalla. *Kumara* Tailapa is said to have installed a diety, named Chandalesvara after his mother, and made the gift at the instance of his nurse *(dayi)* Bhagiyabbe. *Mahamandalesvara* Samkarasa, figuring in a record dated Saka 970 (A.D. 1048), claims a victory over Chakra-kuta and endows the village of Chavunpalli, situated in Kudukuli-13 included in Eltapi-90 which was a *kampana* or division of Vaddavana-500, for the upkeep of a *sattra* attached to the temple of Agastesvara, while he was camping at Tiviri in Kodaregada-nadu.

12. WESTERN CHALUKYA INSCRIPTION, PUDUR, DISTRICT MAHBUBNAGAR.—The inscription registers endowments of land, a garden and certain incomes to god Parsvadeva by *mahamandalesvara* Jattarasa of Punduru in the twelfth year of the reign of Tribhuvana malla (Vikramaditya VI).

13. WESTERN CHALUKYA INSCRIPTIONS, DISTRICT MEDAK.—A record from Nandi-kandi, dated Saka 936 (A.D. 1014) in the reign of Vikramaditya V—the latest known date for this king—registers the endowment of village Kovuru to god Namesvara of Kiriyakandi by the feudatory *mahamandalesvara* Pama-Permadideva. The gift was intended for the upkeep of fifty ascetics and students and maintenance of daily worship in the temple. Dated Saka 972, Vikrita (A.D. 1050), an inscription from Kolkur records a gift of land by *mahasamanta* Bibbarasa, governor of Pettalvada and subordinate of *mahamandalesvara* Pama-Perma-dideva, to mark his victory over the Cholas.

14. COPPER-PLATE, DANTA, DISTRICT SRIKAKULAM.—A copper-plate charter of the Eatern Ganga dynasty was found.

15. INSCRIPTIONS, DISTRICT WARANGAL.—Dated in the cyclic year Plavanga, equated wrongly with Saka 910 instead of 929 (A.D. 1007), an inscription from Illimda records the grant of two *maruttu* of land as *pannasa* to the Aditya-griha on the occasion of a solar eclipse. Another record in Kannada from Guduru bears a date in the cyclic year Krodhin, equated with the forty-ninth year (A.D. 1124) of Tribhuvanamalla Vikramaditya VI and gives a genea-logical account of the chiefs of the Viriyala family. It records the endowment of village Bammera, included in the Velpugonda-24 division, by Malla of this family, who was the son of Beta and grandson of Sura and was a general under *kumara* Somesvara, for the temple of Mallesvara built by him. Another inscription in Telugu verse on the same pillar contains an account of the members of the same Viriyala family from Poranti Venna of Durjaya-kula to Sura.

BIHAR

16. COPPER-PLATES, BAGHA, DISTRICT CHAMPARAN.- Dated Vikrama 1077 (A.D. 1020), one of the two charters records the grant of Vanapalli-grama, situated in Vyalisi-vishaya included in Daradgandaki-mandala, to *Bhatta* Yasaditya of the Savarnya-*gotra.* The other record, dated Vikrama-*samvat* 1083 (A.D. 1026), purports to be an *uddesa-sasana* granting the village Yamani-unda in Dvichatvarimsatika-vishaya within Derdachandika-*mandala* to an unnamed donee of the same *gotra.* Both the grants were made by king Sau-raditya of the Malayaketu family of the Solar race, who was the son of Hamsaraja and grandson of Helavaraha.

4—3 Dir. of Arch./62.

17. INSCRIPTIONS, DISTRICT MONGHYR.—Of about forty inscriptions collected, one, from Anna (near Kiul railway-station), dated in the fourteenth regnal year of Madanapala *(circa* 1144-61), records the gift of a village by the queen of a *mahamandalika* during the rule of *Pithi-pati acharya* Devasena, apparently a predecessor of the well-known *Pithi-patis* Buddhasena and Jayasena. Another epigraph from the same village, dated in the twenty-sixth regnal year of Ramapala *(circa* 1080-1125), is engraved on the pedestal of an image and records the gift of the image by Sonika, wife of the merchant Vambha. An inscription from Kajra railway-station is written in Bhaikshuki characters and contains two stanzas of the Buddhist formula, viz. *Bhagava avuso*, etc., and *ye dharmma*, etc. Another inscription, en graved on an image discovered at Nongarh in Jamui Sub-Division, refers to the reign of the Pala king Madanapala and bears a date in the Vikrama-*samvat* 1201. It is one of the few Pala records dated in an era.

18. COPPER-PLATE GRANT, BAGEN, DISTRICT SHAHABAD.—Dated Vikrama-*samvat* 1381, Jyaishtha-sudi 10, Sunday (3rd June, A.D. 1324), the charter registers the grant of the village of Vagendi on the bank of the Ganga to *senapati* Sagune of the Sandilya-*gotra* by king Bhulla of the Majhivara clan and Cheravu (Chero) race, who was the ruler of Vihiapuri and was the receiver of favours from *Khalipha* Mahamanda Sahi.

19. ROCK-INSCRIPTION, SILSILA, DISTRICT SHAHABAD.—The epigraph is dated in Vikrama-*samvat* 1162 and records the grant of some land in a district within Varanasi by Vimurti as a *Siva-sasana* when *nayaka* Angasimha was ruling at Vanthiam-Patharapura.

20. SPURIOUS GAHADAVALA CHARTER, SONHAL, DISTRICT SHAHABAD.—Dated Vikrama-*samvat* 1223, the charter records the grant of the villages of Badaila and Kirihindi to the Brahmanas of Svarnahala. It is this record that was declared to be a spurious document by *nayaka* Pratapadhavala of Japila in his well-known Tarachandi inscription of Vikrama-*samvat* 1225.

GUJARAT

21. INSCRIPTION, BHAUNAGAR.—A fragmentary inscription, in characters of about the twelfth century, preserved in the Gandhi Smriti Museum at Bhaunagar, refers to king Hariraja and to the Paramara dynasty. It is difficult to say whether king Hariraja belonged to the Paramara ruling family, since there is no ruler of this name among the Paramara kings. The inscription mentions the minister Suda.

22. KSHATRAPA INSCRIPTION, KHAVADA, DISTRICT KUTCH.—A stone inscritpion (pl. LXVI), noticed previously, clearly gives the following genealogy : Gh(or Y)samotika; his son *rajan mahakshatrapa svamin* Chashtana; his son *rajan svamin* Jayadaman; and his son *rajan svamin* Rudradaman.

23. CHAULUKYA INSCRIPTION, BHAVANATH, DISTCRICT SABAR-KANTHA.—Dated Vikrama-*samvat* 1354 (A.D. 1297), this inscription of the reign of Kama II records the death of Munjala of the Sandilya-*gotra* in a cattle-raid and refers to the construction of a temple for the Sun-god named after him by his son Vaijalla.

KERALA

24. INSCRIPTION, ANGADIPURAM, DISTRICT KOZHIKODE.—This Tamil inscription, in Vateluttu characters of about the eleventh century, states that, in the year when Jupiter

was in Mithuna, the citizens of Muranotta-mangalam and the Srivaishnavas of Padi-nettu-nadu accepted an endowment made for food-offerings and garlands to Srikurukur-alvan by Iravi Kuttan *alias* Karunakaran.

MADHYA PRADESH

25. MEDIEVAL INSCRIPTIONS, MOHENDRA, DISTRICT PANNA.—Three inscriptions, one of them dated Vikrama-*samvat* 1366 (A.D. 1309), mentioning the place-name Mahundra, were found.

MADRAS

26. INSCRIPTION, KURUNGALI, DISTRICT CHINGLEPUT.—Dated in the seventeenth year of the reign of Maduraikonda Rajakesari-varman, it records the sale of land to Kuditangi-Pattalakan, who endowed it for the deity Mahadevar of Tiruppagavanrurai on the shores of the eastern ocean as sacred as Gokarna on the west coast.

27. INSCRIPTION, TIRUMULLAIVAYAL, DISTRICT CHINGLEPUT.—This inscription is dated in the fourteenth year of the reign of (Para) kesarivarman and records the assignment of dues in kind from the village of Villipakkam by Sembiyan-madeviyar, the mother of Madhurantakadevar.

28. EASTERN GANGA CHARTER, GOVERNMENT MUSEUM, MADRAS.—Dated Saka 1018 (A.D. 1096), in the riegn of king Anantavarman Chodaganga, the record registers a royal grant of the villages of Nandi, Jambodi, Mundeli and Pranka in Samva-vishaya to Aditya, (Chi)paya, Durgasarman, Narayana, Vishnusarman and Rudra, the sons of Mavena-bhattopadhyaya of the Srivatsa-*gotra,* and to Mavana of the Sandilya-*gotra.*

29. ROCK-INSCRIPTION, PERUNGULATTUR, DISTRICT NORTH ARCOT.—Dated in the twentieth year of the reign of Maravarman Kulasekhara, the inscription records the provision made for the conduct of a festival called *Adittanter* on the sixth day of Masi in the twentieth year by Elumbodalagiyan Kalappalarayan of Tachchur.

30. INSCRIPTION, NAMAKKAL, DISTRICT SALEM.—This inscription, on the beam of the facade of the rock-cut temple of Ranganatha, is engraved in Grantha characters of the seventh or eighth century and records the construction of the temple called Atiyanatha-Vishnu-griha by king Gunasila.

31. PANDYA INSCRIPTION, TIRUKKATTUPALLI, DISTRICT THANJAVUR.—This inscription, in Tamil characters of the ninth century, is dated in the eleventh year of the reign of Maranjadaiyan and records the provision made for a perpetual lamp to Mahadevar at Ayirattali in Niyamam by Sattangali, the daughter of Vedelvidugu-Muttaraiyar.

32. CHOLA INSCRIPTION, TIRUVAYMUR, DISTRICT THANJAVUR.—This incomplete inscription, dated in the thirty-first year of the reign of Rajendra II, contain a string of epithets describing his prowess.

33. PANDYA INSCRIPTION, TIRUMANAMEDU, DISTRICT THIRUCHCHIRAPALLL—This inscription, dated in the fourth year of the reign of Maravarman Kulasekhara, contains the *prasasti* of a community called Vaniya-nagarattar and records the provision made by them for various services to the god Nayanar of Tirumanalmedu.

34. COPPER-PLATE CHARTER OF VIRA-PANDYA, SIVAKASI, DISTRICT TIRUNELVELI — This inscription, in Vatteluttu characters of the tenth century, records the grant of lands in Nalapuram in Melvemba-nadu to Pitambara Vasudeva-bhattan by Vira-Pandya in the third year of his reign. The king's genealogy is given in the charter.

35. INSCRIPTION, TIRUKKALUR, DISTRICT TIRUNELVEU.—This inscription, in Vatte luttu characters of the eleventh century, is dated in the (2)4- 19th year of the reign of a king (whose name is lost) and records the provision for a lamp for the god Emberuman 'lying on *jalasayanam'* at Tirukkolur, made by Ayindan Chintamani alias Kari-Maran.

MAHARASHTRA

36. MARATHI INSCRIPTION, TARABAD, DISTRICT AHMADNAGAR.—Shri B P Bopardikar discovered a six-line inscription on the wall of a tank recording the construction of the tank by Raghunatha Govinda Kulakarni, of *mauje* Tarabad, in Saka 1631 (A.D.1709).

37. PRAKRIT INSCRIPTION, JUNNAR, DISTRICT POONA.—Engraved in Brahmi characters of about the first century, the inscription speaks of the *dharma* (i.e., pious work which was the excavation of the cave) of Popina, wife of Mulasvamin of Kumi.

38. INSCRIPTION, KUDAL, DISTRICT SHOLAPUR.—One of the three inscriptions on a large broken slab near the Sangamesvara temple on the bank of the river Bhima refers to the reign of Kalachuri Sankama (1175-80) and records a grant of land to the temple which is stated to have been consecrated by Harischandra. The second record belongs to a Silahara chief named Dakarasa, while the third is dated in the sixteenth year of Yadava Singhana (1210-47) and refers to a gift of land by *mahapasayata* Jaitaya-sahani.

MYSORE

39. CHALUKYA INSCRIPTION, KADATANAHALA, DISTRICT BELGAUM.—Dated Saka 945, Raktakshi (A.D 1024-25), in the reign of Jayasimha II, the inscription refers to *maha-mandalesvara* Bhimadeva of the (Bai)sa family as administering the Kadaravalli-30 division and to another chief named Kancharasa who belonged to the Ganga family and bore the epithets *Kongunivarma* and *Gangamartanda.*

40. WESTERN CHALUKYA INSCRIPTION, KALLUBHAVI DISTRICT BELGAUM—A damaged record dated Saka 945, Raktakshi (A.D. 1024-25), refers to *mahamandalesvara* Bhimadeva as a feudatory of Chalukya Jayasimha II and also mentions Kancharasa of the Ganga family. A spurious epigraph from the same place, written in characters of about the eleventh century, the date of which is quoted as Saka 261, Vibhava, falling in the regin of Rashtrakuta Amogha-varsha, records a gift of the village of Mukkudavada situated in Kadalavalli-30 to the temple of Jinendra by *mahamandalesvara* Saigotta-Ganga-Permanadi, alias Sivamara, and states that this was renewed by *mahamandalesvara* Kancharasa.

41. KALACHURI INSCRIPTION, GUDDADA-MADAPUR, DISTRICT DHARWAR—Dated Saka 1101, Vikari (A.D. 1179), in the reign of Sankama, the record refers to the excavation of a tank called Isvara-samudra and the construction of the temple of Mallikarjuna by *tantra-pala* Laukmana-nayaka and his sons and nephews, when Isvaradeva (II) of the Sinda family of Belagutti was governing Edevatta and other divisions from Hallavura-Belagavartti, and *maha-pradhana* Kamana-Somana-Kesiraja-dandanayaka was governing Banavasi-12000 with Balligave as its capital.

42. KALACHURI INSCRIPTION, HIREKABBAR, DISTRICT DHARWAR.—Dated Saka 1094 (A.D. 1172) in the reign of Rayamurari Sovideva, the inscription records gifts of land, a flower-garden and an oil-mill to the god Bachalesvara of Hiriya-Kabbara when Mallideva, son of Isvaradeva (I) of the Sinda family of Belagutti, was administering the area from Hallavura. This inscription furnishes the latest date for the chief and also reveals the fact that his mother was Bachaladevi of the Kadamba family.

43. CHALUKYA INSCRIPTION, HIREKERUR, DISTRICT DHARWAR.—Dated Chalukya-Vikrama 17, Sobhakrit, the inscription records the gift of the *perggade-kanike-gadyana*, collected by the *telligas*, to the god Jakkesvara by Gunda-marasa, who was the *prabhu* and *herggade* of the *agrahara* of Nidugundi situated in Kisukadu-70.

44. RASHTRAKUTA INSCRIPTION, MAKARI, DISTRICT DHARWAR.—Belonging to the reign of Akalavarsha Kannara (Krishna II, 878-915), the epigraph seems to record the death of some person when Prithuvi-Mara was governing Banavasi-12000 and Sindaka-Vira was administeing another territory the name of which is not clear.

45. RASHTRAKUTA INSCRIPTION, NULGERI, DISTRICT DHARWAR.—Belonging to the reign of Govinda III (794-814), an inscription records the setting up of a *meli* made by Balmalcha, by Kundavasi and Ajakeyya, who also made a gift of land while Marake-arasa was governing Banavasi-12000. Another epigraph at the same place states that, while Kannara (Krishna II) was ruling, Emmeyara Recha settled some Brahamana families from Kereyur in the locality. Kalimitra wrote the record.

46. INSCRIPTION, SIRAGAMBI, DISTRICT DHARWAR.—A record bearing the figure of a boar at the top and belonging to the reign of Jagattunga Pratapavaloka (Govinda III mentions Rajadityarasa of the Chalukya family as the governor of Banavasi-12000 and records a gift of land to the god Beldeva, made over to Naganandi who was a disciple of Bella-vasada-guravar. The earlier portion of the record registers a similar gift by Apollabbe, wife ofEre-ammarasa who was governing Banavasi-12000, perhaps on an earlier date. Balmalcha en graved the record. A second epigraph of the place, probably of the reign of Krishna II, refers to the setting up of a *meli* while Mara was governing the *nadu*, perhaps meaning Bana vasi. A third inscription of the place refers to the king as Subhatunga-vallabha and registers a gift of land as *bittuvatta* for the upkeep of the loal tank, when Lokayya, same as Lokate of other epigraphs, was administering Banavasi-12000. A fourth record, engraved in characters of about the ninth century on a slab called *negilakallu*, states that Gendavana died being pi erced by a plough-share. The slab depicts a plough-share and a *purna-kumbha* in bas-relief. Three records in late characters register a gift of land as *rakta-manya* to Chaudiyanna, son of Mallanna, the *gauda* of Siragambi, by Hanumanta-gauda of Guttalal, as a compensation for the death of the former's son Mallanna in an explosion at the time of the attack of Sakhara.

47. CHALUKYA INSCRIPTION, KALIGI, DISTRICT GULBARGA.—Dated Saka 964, Chitrabhanu (A.D. 1043), in the reign of Jagadekamalla (Jayasimha II) ruling from Pottalakere, an inscription registers a gift of land to the god Somesyara when *mahamandalesvara* Bibbarasa was ruling over Suguru, Pottalakere and Samgavige. This record furnishes the latest date for the king. From another epigraph we know that Bibbarasa belong to the Varala family.

48. BANA INSCRIPTION, KALIGI AND TENGALI, DISTRICT GULBARGA.—A record from Kaligi gives the names of three generations of a Bana family, the members of which claimed descent from Banasura and bore the title *mahamandalesvara.* These are Vira-Gonkarasa I, his son Udayaditya-Vira-Kalarasa and the latter's son Vira-Gonkarasa 11 who was a

feudatory of Kalachuri Rayamurari Sovideva. Another record from Tengli, dated Saka 1084 (A.D. 1162), refers to Vira-Gonkarasa as a feudatory of Taila III and as the ruler of Khandava-mandala.

49. INSCRIPTION, MUDANUR, DISTRICT GULBARGA.—Dated respectively in the fourth and thirtieth years of the Chalukya-Vikrama era in the reign of Tribhuvanamalla (Vikramaditya VI), the earlier of the two records introduces *dandanayaka* Srikantasvamin who installed the god Kumaresvara and endowed lands, a garden, an oil-mill and shops for the worship of and offerings to the deity. The second record registers an endowment of lands by Iladevi, wife of *mahamandalesvara* Nagularasa, to the local god Ugramartanda. An inscription, dated in the third regnal year (1146) of Jagadekamalla (II) of the same family, registers a grant of the income from the *hejjunka* and *vaddaravula* taxes derived from eighte enth thousand *matter* of land in the village of Mudinir by *mahapradhana dandanayaka* Gayadhara, the *Sunkaverggade* under the king. A fourth inscription of the Yadava king Bhillama is dated in the king's second regnal year (wrongly equated with Plava instead of Plavanga) and records a grant of the income from certain taxes to the god Lakshmanesvara. According to this inscription, the king's reign commenced some time in 1187.

50. LABEL-INSCRIPTIONS, MUDANUR, DISTRICT GULBARGA.—Four labels, in char acters of the thirteenth century, on different boulders, consecutively marked with numbers, read *sukanasiya ola-tara.* The boulders appear to have been earmarked for some construc tion-work in the interior of the *sukanasi,* probably of the dilapidated temple close by.

51. CHALUKYA INSCRIPTION, TENGALI, DISTRICT GULBARGA.—Dated in Chalukya-Vikrama II (A.D. 1086), the inscription records a grant of two villages to a number of Brahmanas by queen Mailaladevi, wife of Vikramaditya VI. On a representation that this was insufficient, she made a further grant of five *sunya-gramas* in the next year, while camping on the bank of the river Tapi. The record is written in Sanskrit in Nagari characaters.

52. INSCRIPTIONS, MALHAT, DISTRICT RAICHUR.—The inscriptions acquaint us with some feudatory chiefs of the Haihaya family who called themselves the lords of Mahishmatipura and had their headquarters at Morata (modern Malhat). The earliest of the rulers is Ghattiyarasa who was a feudatory of Chalukya Jagadekamalla II. Next comes Hallavarasa and then Mallidevarasa who claims to be a scion of the Kalachurya king Sankama and was the son of Hullarasa (probably the same as Hallavarsa). He was at war with the Yadavas and Kalachuryas and had four sons, viz. Allahuli, Hallega, Bayirugi and Immadi Mallidevarasa.

53. RASHTRAKUTA INSCRIPTIONS, YERADONI, DISTRICT RAICHUR.—Dated Saka 849 Sarvajit (A.D. 927-28), the inscription attributes the title *Hiranayavarsha* (in place of Suvarnavarsha) to Govinda IV and registers a gift of land and the income from *siddhaya* to Demayya. It mentions Karadikal-nadu and other division.

54. HOYSALA CHARTER, BELAGULI, DISTRICT TUMKUR.—A set of three copper-plates, strung together with a ring having a tiger seal, belongs to the rule of Vira-Narasimhadeva and is dated Saka 1188 (A.D. 1266). It records the renewal of an old land-grant to certain persons at Huliyur.

RAJASTHAN

55. KUTILA INSCRIPTION, TASAI, DISTRICT ALWAR.—An inscription recording the construction of a Vishnu temple, was found by the Curator of the Museum, Alwar, fixed on the wall of a local temple.

56. MEDIEVAL INSCRIPTIONS, PUR, DISTRICT CHTORGARH.— Two inscriptions, respectively dated Vikrama-*samvat* 1164 and 1327, were noticed in ruins of temples by the Superintendent of Archaeology and Museums, Udaipur.

57. INSCRIPTION, JAMWA-RAMGARH, DISTRICT JAIPUR.—A three-line inscription, with the date A.D. 1061, was noticed.

58. COPPER-PLATES, PANCHALA, DISTRICT NAGAUR.—Three copper-plates, dated Vikrama-*samvat* 1700, 1706 and 1825, were reported by Shri N. M. Ganam to be in the possession of the Mahant of Jasnathji-ka-asram. They seem to be copies of the *farmans* or *khalitas* issued by the rulers of Jodhpur and Udaipur.

59. PARAMARA INSCRIPTION, CHANDRAVATI, DISTRICT SIROHI.—Two inscriptions, respectively dated Vikrama-*samvat* 1231 and 1232, the letter of the Paramara dynasty, were found.

60. INSCRIPTION, KUSUMA, DISTRICT SIROHI.—Dated Vikrama-*samvat* (A.D. 636), the inscription, now preserved in the Jodhpur Museum, records the construction of a Siva temple in a place described as the hermitage of the sage Kutsa on a hill by Satyabhata who was the younger brother of a king. The eulogy was composed by the Brahmana Sivagupta and engraved by a Kshatriya named Sthavara.

UTTAR PRADESH

61. BRAHMI INSCRIPTION, DURA, DISTRICT AGRA.—Dated in the sixteenth year of the reign of Kanishka, the inscription records the dedication of a house in favour of some community of monks by Vardhantika, daughter of Vasudatta of the Ati clan and the Rishtisena (Arishtasena)-*gotra*

62. ROCK-INSCRIPTION, ALMORA.—Shri K. P. Nautiyal discovered a two-line inscription in *kutila* script of the sixth century on a rock near Almora, recording a pious deed by one Rudresa, whose genealogy is also given.

63. INSCRIPTION, GANNATH, DISTRICT ALMORA.—Dated Vikrama-*samvat* 1059, the inscription refers to the installation of the image of Vaikuntha (i. e. Vishnu) by *maharajadhiraja* Tribhuvanapala, son of Indrapala and grandson of Lakhanapala.

64. GAHADAVALA CHARTERS, STATE MUSEUM, LUCKNOW.—One of the charters, dated Vikrama-.*samvat* 1217, Chaitra-badi 11, Wednesday, records the grant of Kandini-grama in Umbara-pattala by king Vijayachandra after taking a bath at the confluence of the Ganga and Kali rivers from his camp to the west of Khoda. Another charter of the same king, dated Vikrama-*samvat* 1221 (A.D. 1164), states that he granted the village of Kanhavara in Valai-pattala to a Brahmana after having taken a bath in the Yamuna at Kausambi. A charter, dated Vikrama-*samvat* 1232 (Asvina-sudi 14, Monday), records the grant of the village of Chandavaka by Jayachchandra to *mahasandhivigrahika Bhandagarika* Ravidhara on the occasion of the *jatotsava* of *Maharajaputra* Harischandra. A second charter of king Jayachchandra, issued on the same date, records the grant of Avalu-grama in favour of the said Ravidhara. There are four other charters which were all issued by Jayachchan dra in Vikrama-*samvat* 1233 (Ashadha-badi 15, Sunday) in favour of the same donee. They record the grant respectively of the following villages : (1) Khavadayi-grama in Dirghodaya-pattala; (2) Saratavada-grama in the same *pattala;* (3) Badhaosa-grama in Manjoha-pattala ; and (4) Manjhihosa-grama in Jaruha-pattala. Most of these grants were written by *mahakshapatalika Thakkura* Sripati.

ARABIC AND PERSIAN INSCRIPTIONS[1]

BIHAR

1. INSCRIPTION OF HUSAIN SHAH , MAJOHIDPUR, DISTRICT BHAGALPUR.—Shri A. D. P. Singh found an inscription of 'Atau'd-Din Husain Shah of Bengal, dated A. H. 917 (A.D. 1511-12), in a mosque.

2. INSCRIPTION OF MAHMUD SHAH TUGHLUQ, KAKO, DISTRICT GAYA.—This inscription (pl. LXVII A), now fixed in the *dargah* of Bibi Kamal, is partly damaged. Dated A.H. 799 (A.D. 1397), it mentions Khan-i-Mu'azzam A'zam Khan as the governor.

3. INSCRIPTIONS OF THE MUGHULS, DISTRICT GAYA, PATNA AND SHAHABAD.—An inscription of Akbar, from Rohtasgarh fort, in Shahabad District, assigns the construction, in A.H. 986 (A.D. 1578), of a mosque to Habash Khan. Another, from the Jami' mosque, Bihar-Sharif, Patna District, registers the construction of that mosque, in A. H. 1004 (A.D. 1595-96), by Masnad-i-'Ali Sa'id Khan, a governor of Bihar.

An epigraph, the tablet of which is now kept in the house of the *mutawalli* of the above-mentioned *dargah,* at Hilsa, records the construction of a mosque by Rida in A.H. 1013 (A.D. 1604-05). The most interesting aspect of this record is that it mentions prince Salim (later on Jahangir) as the reigning emperor, instead of Akbar who was then alive. Another inscription of Jahangir, from Gaya, is to be found on the Shahi mosque, which is stated therein to have been built through the blessings of the saint Shaikh Barmazid, by Mirak Husain al-Bakshi al-Khawafi, in A.H. 1026 (A.D. 1617).

Three inscriptions of Shah Jahan, all from Bihar-Sharif, mention Habib Khan Sur as having constructed a mosque as well as a tank and built an 'Idgah and its brick-floor, in A. H. 1047 (A.D. 1638) and A. H. 1056 (A.D. 1646) respectively.

4. INSCRIPTIONS OF THE SUR DYNASTY, HILSA AND JANA, DISTRICT PATNA.—Of the two records of the Sur dynasty, one, which is from the *dargah* of Shah Jamman Jati, at Hilsa, pertains to the reign of Sher Shah and is interesting in that the latter is mentioned as having been 'raised' by Darya Khan Nuhani. It refers to repairs carried out to the tomb of the saint. The other epigraph, now appearing on a modern mosque at Jana, assigns the erection of a mosque in the time of Sher Shah, in A.H. 946 (A.D. 1539-40), to one Pyara Isma'il.

5. INSCRIPTION OF THE SULTAN OF BENGAL, NARHAN, DISTRICT SARAN.—A new record of 'Alau'd-Din Husain Shah, the Bengal King, was found (pl. LXVII B). The fragmentary record refers to the construction of the mosque by the king.

GUJARAT

6. INSCRIPTIONS OF THE SULTANS OF GUJARAT, DISTRICTS BANAS-KANTHA, BROACH, MEHSANA AND SABAR-KANTHA.—One of the two inscriptions, belonging to Zafar Khan', later Muzaffar Shah I, is attached to the Jami' mosque at Munjpur, District Mehsana, and' states that the mosque was built by Masnad-i-'Ali A' zam Humayun Zafar Khan son of Wajihu'l -Mulk, in A.H. 804 (A.D. 1401-02). The other epigraph, from the Jami' mosque of Sami in the same District, records that the said mosque of the town *(qasba)* of Sami was built in A.H. 807 (A.D. 1404), during the time of Masnad-i-'Ali Zafar Khan.

[1] Information from: 1, the Superintendent, Mid-eastern Circle; 15 and 16, the Superintendent, Western Circle; and rest; the Superintendent for Arabic and Persian Inscriptions, of the Survey.

EPIGRAPHY

An epigraph, dated A.H. 848 (A.D. 1444-45), in the reign of Muhammad II, was found at Patan, District Mehsana. It records the building of a mosque, inside the *dargah* of the great saint, Shaikh Muhammad, known as Turk, by Bahrain, son of Zain, a disciple of Khwajagi Taj.

Another inscription, from the Jami' mosque, Malan, District Banas-Kantha, states that the *masjid* in the hill-fort of the said village, the name of which is spelt as Malun, was ordered to be erected during the reign of Qutubu'd-Din Ahmad II (1451-1457) but was actually built by Khan-i-A'zam Ulugh Khan at the instance of the local *thanedar,* in the time of Mahmud I, A. H. 866(A.D. 1462).

Of the two inscriptions presenting Muzaffar II, the one from the Jami' mosque at Jambusar, District Broach, states that the mosque was built by the orders of the king in A.H. 914 (A.D. 1508-09). The other is from a step-well at Himmatnagar, District Sabar-Kantha ; it mentions Malik Shams, son of Mubarak Sultani, entitled Maliku'sh-Sharq Shamshiru'1-Mulk, as having constructed the well in A. H. 928 (A.D. 1522). The record also bears the regnal year, Shamsiyya 12.

7. INSCRIPTIONS OF THE MUGHULS, DISTRICT MEHSANA.—An inscription of Akbar, from Patan, states that an auspicious place *(buqa)* was constructed in A.H. 985(A.D. 1577) by Saliha Banu, wife of Khwaja Khalilu'llah, governor of Patan at that time.

Another epigraph, from the Jami' mosque at Munjpur, supplies the valuable information that the *pargana* of Munjpur lay in the fief of Nabi Khan, son of Pahar Khan Khokhar. It is dated A. H. 1056 (A.D. 1646), in the reign of Shah Jahan.

8. INSCRIPTION OF FIRUZ SHAH TUGHLUQ, PRANTIJ, DISTRICT SABAR-KANTHA.—An interesting inscription, fixed on the Tekrewali-Masjid, assigns the construction of the mosque, in A. H. 784 (A.D. 1382), to Hammu, son of Duda Sumara.

MADHYA PRADESH

9. INSCRIPTIONS OF THE MUGHULS, DISTRICTS SAGAR AND VIDISHA.—An inscription, from Khan Sahib's mosque at Kanjia, District Sagar, is partly damaged and records the construction of a mosque in the *qasba* of Karanjiya in A. H. 1003, regnal year 40, of Akbar (A.D. 1594-95), by Gulab Khan, son of Shamshir Khan.

An epitaph from Udaipur, Vidisha District, states that this mosque was constructed by Qadi Auliya, son of Sayyid 'Abdu's-Samad al-Hasani, in the middle of A. H. 1026 (middle of A. D. 1617), at a time when Jahangir visited Mandu. An interesting but damaged record of the same emperor, now appearing on the entrance of the civil court at Sironj, in the same District, registers a royal order *(farman)* prohibiting the levy of *zakat* throughout the kingdom and enjoining upon the governors, officials, *jagirdars, karoris, rahdars* and *gudharbans* not to challenge the same.

Of the seven inscriptions belonging to the reign of Shah Jahan, the earliest, from the 'Idgah at Kanjia, assigns its construction, in A. H. 1049 (A.D. 1640), to 'Abdu'1-Wasi' Badakhshi and further states that Karanjiya was included in the *jagir* of Nawwab Sayyid Safdar Khan. The second record, from a mosque at Udaipur, states that the mosque was built, in A. H. 1050 (A.D. 1640-41) for the merit of Taj Sultani, wife of Khan-i-A'zam Salim Khan. The third inscription, again from Kanjia, records the construction of the mosque by Chaudhari Safdar, in A. H. 1051 (A.D. 1642), when Nawab Safdar was the fief-holder. According to the fourth inscripton, from Udaipur, a mosque was erected in A. H. 1054 (A.D. 1644), by Ilah Bakhsh, son of Nathuli Mumi, inhabitant of the *pargana* Udaipur in *sarkar* Chanderi of the *suba* of Malwa, under the superintendence of his wife, Firuz

Khatun. The fifth, from a mosque in Vidisha, states that the mosque was built during the governorship, of the city, of Mirza Hasan, by Sidi Yaqut in A. H. 1061 (A.D. 1650-51). The sixth record, from Sironj, District Vidisha, mentions the construction of a mosque in A. H. 1067 (A.D. 1656-57), by Muhammad Salih Siddigi, governor of the province of Malwa. The last, dated in the final year of Shah Jahan's reign, was found at Sironj and constitutes a chronogram, composed and inscribed by Nizami, for the death of the above Shaikh Salih, who had died in A. H. 1086 (A., D. 1657), and further mentions him as a perfect and wise minister.

Of the three records of Aurangzeb, one, from Sironj, records, in a chronogram composed and written by Darya, the date of construction of a mosque by Shaikh 'Abdu'l-Ghaffar, son of Nuru'd-Din, Dhu'l-Qadar, who is spoken of as Amiru'l-Umara, in A. H. 1073 (A.D. 1662-63). Another, from Tconda, in District Vidisha, states that a well was constructed for public use in A. H. 1102 (A.D. 1690-91) by Makarand Narayan Kayasth, an inhabitant of Tanwanda. It is striking that this epigraph records the emperor's title as-Muzaffaru'd-Dunya wa'd-Din, instead of his usual title Muhyiu'd-Din. The third inscription, from Kanjia, states that when the *jagir* of Karanjiya was conferred on Raja Subha-karan, Munir Khan constructed a mosque, in A. H. 1114, regnal year 47 (A. D. 1703).

10. INSCRIPTIONS OF THE LATER MUGHULS, DISTRICT VIDISHA.—Of the two inscriptions of the Later Mughuls, one from Bhonrasa in Vidisha District, belongs to the reign of Farrukh-Siyar and assigns the construction of a mosque to Qadi Sayyid Wali Muhammad in A. H. 1125, regnal year 2 (A. D. 1713).

The other, an interesting record of Muhammad Shah's reign, is set up in the civil court building at Sironj, and states that the gateway of the *Mandawi-i-Namak* was built A. H. 1159, regnal year 29, Vikrama-*samvat*-1803 (A. D. 1746), under the superintendence of Raghoji Pandit and Baghaji Pandit. It further mentions Govind Modhaji Pandit as the *darogha* of the *mandi*, Lachhman Shankar Pandit as the *mokasadar* of *pargana* Sironj and Sawa'i Balaji as the governor of the province of Malwa and deputy of Sri Raja Sahu.

11. INSCRIPTION OF THE SUR DYNASTY, UDAIPUR, DISTRICT VIDISHA.—This inscription, from a mosque, states that it was constructed in the time of Islim Shah, by Khan-i-A'zam Jangi Khan, during the governorship of Masand-i-'Ali Mas'ud Khan, son of Mubarak Ghazi, in A. H. 956 (A. D. 1549).

12. MISCELLANEOUS RECORDS, DISTRICT VIDISHA.—An epitaph, from Vidisha, records the death in A. H. 905 (A. D. 1500), of one Khalu Sibghatu'd-Din 'Abdu'r-Rahman, who is spoken of as a 'great Khawaja, pride of merchants', etc. An inscription, from a *hammam* at Sironj, states that it was constructed under the superintendence of Khwaja Wis Shaista Khani, in A. H. 1056 (A. D. 1646). The record was composed and inscribed by Yumni Shaista Khani.

MAHARASHTRA

13. INSCRIPTIONS OF THE LATER MUGHULS, DISTRICT AKOLA.—An inscription, belonging to the reign of Farrukh-Siyar, was found at Balapur, in District Akola; it mentions one Amin Quli Khan as the builder of a mosque in A. H. 1130 (A. D. 1717-18), and Muhammad Amin Khan as the fief-holder. Two inscriptions, from the Delhi gate at Karanja, are almost identical in their purport and run to the effect that 'Abdu'l-Wahid, a *faujdar*, strove for the construction of the gate in A. H. 1139 (A.D. 1726-27). An interesting inscription, from Balapur, contains a chronogram, composed by the well-known oriental poet and writer, Ghulam 'Ali Azad Bilgrami, for the date of death of Shah Ma'sum a saint viz.A.H. 1196 (A.D. 1781-82).

14. INSCRIPTIONS OF THE MUGHULS, DISTRICTS AKOLA AND BULDANA.—A badly-damaged inscription, appearing on a *dargah* at Mangrulpir, in Akola District, seems to mention Prince Murad, son of emperor Akbar ; it bears the date, 1st Rabi'-II A. H. 1007 (22nd October, A. D. 1598).

On the three inscriptions of emperor Aurangzeb, one, appearing on the Ghat-Dar-waza at Lakhanwada, in Buldana District, states that the gate was constructed under the orders of Khan Jahan Bahadur Kokaltash, governor of Deccan, in the twenty-fourth regnal year (A. D. 1680-81). The other, from the Darwa gate at Karanja, District Akola, records that the.Mahur gate was constructed in regnal year 42 (A. D. 1698-99) during the time of Qadi Bashiru'llah, *the faujdar*, when Rustam Khan, was the *jagirdar* of the place. A third inscription, on the Mangrul gate at the same place, mentions that the Dakhan gate was built in regnal year 43 (A. D. 1699-1700), by the same Qadi Bashiru'llah, and *faujdar* of the *qasba*, in the fief of the said Rustam Khan. This record was inscribed by Shamji Babu Rai.

RAJASTHAN

15. FIFTEEN INSCRIPTIONS, JAISALMER.—Fifteen Persian inscriptions in *Nastaliq*, belonging to Mir Muhammad Masum of Bhakkar, calligraphist of the period of Akbar, were discovered by Shri N. M. Ganam. They record his halt, construction of a building and journey to Iraq as ambassador.

16. MISCELLANEOUS INSCRIPTIONS, DISTRICT NAGAUR.—An inscription was dis covered by Shri N. M. Ganam in the Bari-Masjid at Basni-Bahlima. It records the cons truction of the mosque in the thirty-eighth regnal year of Aurangzeb. Another inscription in *Tughra* was discovered by Shri Ganam in a mosque at Balapir. According to it the mos que was erected during the time of Firuz Khan of Khan.Wadaha family, who died in A. H. 899 (A. D. 1493), having ruled for twenty-four years. Inscriptions of the twelfth to four teenth centuries were noticed by Shri Ganam at Nandwani, Bhundel and Kharnal. At Nagaur he found twenty-four inscriptions ranging in date from A. H. 733 (A. D. 1333) to A. H. 1197 (A. D. 1783).

UTTAR PRADESH

17. INSCRIPTIONS OF THE MAMLUK DYNASTY, DISTRICT ALIGARH AND BADAUN.—A loose fragmentary slab, now kept in the Maulana Azad Library, Muslim University, Ali garh, bears a new record of Iltutmish, mentioning the construction of some edifice during the governorship of Khwaja-i-Jahan Nizamu'1-Mulk (Junaidi), the prime minister. An other inscription of the same king, from Badaun, is likewise a fragmentary record, the ex tant text of which contains only the name of Abu Nasr Mahmud, son of 'Umar Dahistani. The third inscription of the Mamluks, again from Badaun, is badly damaged and seems to record the construction of some structure by (name illegible) the son of Mahmud.

18. INSCRIPTIONS OF THE SUR DYNASTY, ALIGARH AND BADAUN.—An epigraph, from Aligarh, assigns the construction of a mosque, in the time of Sher Shah, in A. H. 949 (A. D. 1542), to Zainu'l-'Abidin, son of Karim'd-Din Shah. Another inscription, from Badaun, dated in the reign of Islam Shah, refers to the building of the tomb of Jajhar Khan, *alias* Shaikh Buddhan, son of Sa'du'llah, in A. H. 957 (A. D. 1550), at the instance of Miyan Fathu'llah.

19. FIFTEENTH-CENTURY INSCRIPTION, BADAUN.—An interesting epigraph, dated A. H. 901 (A. D. 1495-96), from the Nabi-Khana, is badly damaged; it seems to state that Jamal Khan, son of Khaira Sarwani, spent an amount on the repairs of the fort, and that subsequent governors should also carry out repairs to the fort.

20. INSCRIPTION OF THE LODIS, BADAUN.—An inscription, from a tomb, records the construction in A.H. 877 (A. D. 1472-73), during the rule of 'Ahmad Khan Lodi, of the dome of the tomb of Maliku'sh-Sharq Malik 'Imadu'1-Mulk, at the orders of his son, Maliku'sh-Sharq 'Imadu'1-Mulk.

21. INSCRIPTIONS OF THE SAYYID DYNASTY, BADAUN.—Of the two inscriptions of the Sayyids, one, originally belonging to a mosque, is a fragmentary record, dated A. H. 835 (A. D. 1431), in the reign of Mubarak Shah and mentions one Maliku'sh-Sharq (name lost) as the builder.

The other epigraph, from a tomb, records the building of the 'tomb of the mother of Shahzada Fath Khan' in A. H. 860 (A. D. 1456), during the reign of 'Alau'd-Din 'Alam Shah.

22. INSCRIPTIONS OF THE TUGHLUQS, BADAUN.—An inscription from the Jami' mosque, dated in the reign of Muhammad bin Tughluq, refers to the renovation of the building in A. H. 726 (A. D. 1326) by Husain , son of Husain, the *kutwal Bek* of the District of Badaun. Another inscription of the same monarch records the construction of a new building, in A. H. 728 (A. D. 1328), by Muhammad Sultani, an official.

An epigraph, from the *dargah* of Shah Wilayat, is a new record of Nasiru'd-Din Muhammad, son of Firuz Shah and states that the tomb of the saint, Hadrat Badru'd-Din, was constructed in A. H. 792 (A. D. 1390), by Khidr, son of Nasru'llah, *kutwal* of the district of 'Bada'un'

23. MUGHUL INSCRIPTION, BADAUN.—An inscription, from the *dargah* of Shah Wilayat, mentions the beautification of the Shamsi building and garden in A. H. 981 *(A.* D. 1573-74), during the reign of Akbar, by Mirza Muhammad Shah, son of Wali.

III. NUMISMATICS AND TREASURE-TROVE[1]

ANDHRA PRADESH

1. VIJAYANAGARA COINS, GARUDAPURAM, DISTRICT ANANTAPUR.—Twelve gold coins, forming a treasure-trove, were found to bear the usual legend *pratapa*.

2. VIJAYANAGARA COINS, MANNESULTANPALEM, DISTRICT GUNTUR.—Five gold coins found as a treasure-trove belonged to the Vijayanagara king Sri Pratapadevaraya.

BIHAR

3. MUGHUL COINS, DISTRICT SANTAL PARGANAS.—Two silver coins, pertaining to a treasure-trove, belonged to Shah Jahan.

4. PALA COINS, DISTRICT SHAHABAD.—Nine silver coins of Vigrahapala were acquired from the District Magistrate.

DELHI

5. MUHAMMAD BIN TUGHLUQ'S COINS, DELHI.—A large hoard of the brass and copper tokens was found.

KERALA

6. SILVER AND COPPER COINS, DISTRICT CALICUT.—Two hoards, one of two thousand silver coins of Mughul emperors and another of one hundred and ninety-three copper coins, being the *paisas* of Tipu Sultan, were found. A part of the former hoard had already been melted down before action could be taken.

MADHYA PRADESH

7. COIN-DIE OF INDRAGUPTA, ERAN, DISTRICT SAGAR.—The king's name is inscribed in Mauryan Brahmi characters with the title *rano.*

8. RAMAGUPTA AND OTHER COINS, VIDISHA.—Copper coins of Ramagupta, Sivagupta and Sakhadeva were discovered. The latter two belonged to the second century B.C. and third century A. D. respectively.

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[1] Information from : 1 and 2, the Superintendent, South-eastern Circle, 5, the Superintendent, Northwestern Circle, 9, the Superintendent, South-western Circle, and 10, the Superintendent, Central Circle, of the Survey; 3 and 4, the Curator, Patna Museum; 6, 11-14 and 15-18, the Directors of Archaeology, Kerala, Mysore and Rajasthan States respectively; and 7, 8 and 19, Shri K. D. Bajpai.

MAHARASHTRA

9. EARLY AND MEDIEVAL COINS, ELLORA, DISTRICT AURANGABAD.—Copper coins, one each of the Pallavas, Cholas, 'Alua'd-Din Khilji, Mahmud Shah, Firuz Shah Bahmani and Sivaji, and two each of Qutbu'd-Din and Muhammad Tughluq, besides those of other Tughluq and Bahmani rulers, were discovered during clearance. Silver coins, one each of the Kadambas, Sultan Qutbu'd-Din Mubarak Shah I of the Khilji dynasty, Shah Jahan and Shah 'Alam II were also recovered.

10. KUSHAN AND PALLAVA COINS, NAGARA, DISTRICT BHANDARA.—Copper coins, ten Kushan and one Pallava, were found.

MYSORE

11. COPPER COINS, BIDADI, DISTRICT BANGALORE.—Twenty-three copper coins of the late Vijayanagara and early Mysore rulers were found.

12. SILVER COINS, ANANTASAYANAGUDI, DISTRICT BELLARY.—Twenty-three silver coins of the Nizams of Hyderabad were received from the Deputy Commissioner.

13. GOLD ORNAMENTS, KAMALAPUR, DISTRICT BELLARY.—Nine gold ornaments, pertaining to a treasure-trove, probably belonged to the Vijayanagara period.

14. GOLD COINS, KAKABAL, DISTRICT CIIITALDRUG.—Twenty-eight gold coins of the Vijayanagara rulers were discovered.

RAJASTHAN

15. MUGHUL COINS, DISTRICT CHITORGARH.—Fifty-one copper coins from Parsoli and silver coins of the same number from Bengu were obtained.

16 MISCELLANEOUS OBJECTS, BUDHADEET, DISTRICT KOTAH.—Fifty-one silver coins of the Mughul period, a quarter-rupee of Victoria and a silver necklace were found.

17. GUPTA COINS, BAIRH, DISTRICT TONK.—Five gold coins were discovered.

18. MUGHUL COINS, DISTRICT TONK.- -TWO hundred and twenty silver coins belonged to the late Mughul period.

UTTAR PRADESH

19. COPPER COINS, KAUSAMBI, DISTRICT ALLAHABAD.—Copper coins of Ramamitra, Priyamitra and Jyesthagupta, of the first century B. C, were found.

IV. OTHER IMPORTANT DISCOVERIES

ANDHRA PRADESH

1. PALAEOLITHS, DISTRICT CHITTOOR.—Exploration by Shri H. Sarkar in the Swarnamukhi basin revealed a palaeolithic industry at such places as Tirupati and Sitarampeta. Tools in the present collection comprised mostly developed Acheulian handaxes.

2. PALAEOLITHIC SITE, DISTRICT GUNTUR.—Shri A. Ghosh and Shri H. Sarkar discovered a palaeolithic site in the vicinity of the famous Buddhist site near Goli on the bank of the Golivagu. The collection included both lower as well as upper palaeolithic tools. A few microliths were also picked up.

3. IMAGE, HYDERABAD.—A metal image of Siva, about 60 cm. in height, was dis" covered at Hyderabad while foundations were being dug for a house in Gowlipura, Kali-Waqul, informs the Director of Archaeology, Andhra Pradesh State.

4. PALAEOLITHS, DISTRICT KURNOOL.—Shri K. Raghavachary found some palaeolithic tools of Series 1 at Pitikayagulla in Giddalur Taluk.

5. PALAEOLITHIC SITES, DISTRICT NALGONDA.—Dr. K. D. Banerjee discovered two rich palaeolithic sites at Veerla-Bodu within the area of the Nagarjunasagar dam on the Krishna. They yielded tools of post-Acheulian types comprising handaxes, cleavers and a large number of scrapers. Further exploration by him around Yelleswaram and within the Nagarjunakonda valley also brought to light three fresh palaeolithic concentrations of early to late Acheulian types of artefacts.

6. BRONZE BELLS, DISTRICT WARANGAL.—Three bronze bells from Kulpauk, one of them inscribed in medieval Telugu-Kannada script with *sri-Gandappa-Naikani-KoUi-pakeya-Sakalesvara-Somesvara-devarige kotti puja,* constituted an important discovery, reported by the Director of Archaeology, Andhra Pradesh State.

7. MEDIEVAL IMAGE, DISTRICT WARANGAL.—A medieval stone image of Ganesa was discovered at Revarthi in Jangaon Taluk by Shri Syed Ahmad.

BIHAR

8. MINARET, DISTRICT BHAGALPUR.—At Tarchha a minaret, known as 'Shikargah,' of the time of Shuja, son of Shah Jahan, was noticed by Shri A. D. P. Singh.

9. PALAEOLITHS, DISTRICT BHAGALPUR.—Palaeoliths were found at Raja-Pokhar, Bhaljore and Rajdot in Mali-Pahar by Shri A. D. P. Singh.

10. EARLY HISTORICAL SITE AND SCULPTURES, DISTRICT CHAMPARAN.—Numerous stone images of different deities, assignable from the early historical to Pala periods, were found by Shri B. N. Prasad over a mound at Sahodarsthan near Shikarpur.

11. MEDIEVAL SITE, DISTRICT CHAMPARAN.—At Mahajogin medieval mounds containing brick structures and a stone temple were discovered by Shri B. N. Prasad.

12. PALAEOLITHS, DISTRICT HAZARIBAGH.—Palaeolithic handaxcs were found at Banda and Rajrappa by Shri B. K Sharan.

13. SCULPTURES, DISTRICT HAZARIBAGM.—Numerous stone images of deities like Uma-Mahesvara, Surya, Vishnu and Durga were discovered by Shri B. K. Sharan at village Siri.

14. DOLMENS, DISTRICT RANCHI.—A large number of dolmens were discovered by Shri B. K. Sharan at Chokahatu and Bamla.

15. MICROLITHS, DISTRICT RANCHI.—Microlithic blades, flakes and cores were discovered by Shri B. K. Sharan at Bansjore, Harin, Bhakuadih, Daruharu, Bamla and Guram.

16. SCULPTURES, DISTRICT RANCHI.—At Tanginath (Majgaon) near Chainpur several sculptures of the medieval period, along with the ruins of brick and stone temples, were noticed by Shri B. K. Sharan.

17. PALAEOLITHS AND MICROLITHS, DISTRICT SINGHBHUM.—At Chaibasa and Bardha, palaeoliths and microliths were found by Shri B. K. Sharan.

GUJARAT

18. SCULPTURES AND TEMPLES, DISTRICT JUNAGADH.—A unique Kshatrapa stone head was. discovered by Shri J. M. Nanavati from Kaka-ni-Simpona near Jamkhambhalia. Shri H. P. Shashtri, Shri M. A. Dhaky and Shri N. H . Bhatt discovered a pre-Solanki Sun temple with a pyramidal *sikhara* at Pasnavada. A similar pre-Solanki Sun temple was also located by the latter two at Jhamara. Shri M. P. Vora discovered a Sun temple at Akhodar.

19. BRONZE SCULPTURE, DISTRICT SABAR-KANTHA.—A bronze figure of Atlantes (pl. LXVI1I A) was found in the bed of the river Meshvo at Devnimori by the Public Works Department of Gujarat State while digging for the foundations of a dam and was made over to the University of Baroda. It is a fine bearded figure with pronounced muscles.

KERALA

20. MEGALTTHIC SITE, DISTRICT CANNANORE.—Shri K. Chandrasekaran found an umbrella-stone *(topikallu)* at Cherunthazham.

21. ROCK-CUT CAVES, DISTRICT CANNANORE AND KOZHIKODE.—Shri K. Chandr asekaran noticed some already-rifled rock-cut caves of possible megalithic association at Pattanur-Pazhassi, Koleri, Payam, Kannavaram, Kolavallur, Panniyannur, Kuttur, Eruvassi, Kanjirode, Ezhom, Kadambur, Mavilayi and Eruvatti in District Cannanore and at Memunda and Cherode in District Kozhikode.

22. MEGALITHS, DISTRICT KOZHIKODE.—Near the rock-engravings at Edakal already noticed by Fawcett, two extensive areas containing cists and stone circles were noticed by the Department of Archaeology, Kerala State. These are at Cheengeri-Desom Ambalavayal-Amsom and at Nenmeni, south Wayanad.

23. MEGALITHS, DISTRICTS QUILON AND PALGHAT.—At Poothamkiara in Quilon and Pallavaeer in Palghat Districts were noticed cists and stone circles by the Department of Archaeology, Kerala State.

24. ROCK-CUT CAVES, DISTRICT TRICHUR.—Two rock-cut caves were noticed at Ponnani and at Koonamoochi by the Department of Archaeology, Kerala State. Black-and-red Ware and some rusted iron implements were also obtained from these caves.

MADHYA PRADESH

25. CAVES, DISTRICT BASTAR.—Shri V. S. Wakankar explored the subterranean limestone caves at Gupansar and found some microliths at some distance from the entrance to the caves.

26. MEDIEVAL TEMPLE, DISTRICT BHIND.—Shri J. P. Srivastava discovered a Siva and a Devi temple with fine carvings (pl. LXVIII B) at Lavan in Tahsil Mehgaon. A beatifullycarved stone jamb with the remains of a temple was also noticed by him at Ghirongi in Tahsil Gohad.

27. ANCIENT SCULPTURES, DISTRICT BILASPUR.—Malhar, which is already well-known for its Buddhist, Jaina and Hindu ruins and sculptures, was further explored by the South-eastern Circle, leading to the discovery of some interesting and beautiful sculptures ranging from about the the second century B. C. to the twelfth century. Of these, the earliest is a stone statue, locally called Chaturbhuji-Bhagavan, with four hands, of which the front two are clasped in *anjali,* while the two back ones hold a *chakra* and a *sankha.* A *gada* in the form of a long shaft or staff rests on the right arm. On it is engraved a Prakrit inscription in Brahmi script of about the second century B. C. , recording the setting up of the image. Close to this was found another image of Ambika and a standing Jaina image, evidently of Mahavira, datable to the eighth century.

28. PALAEOLITHS, DISTRICT CHHATARPUR.—Tools of Series I were discovered by Shri C. B. Trivedi in loose gravels of the river Bila from the reserve forest area of Mohari in Tahsil Bijawar.

29. MICROLITHS, DISTRICT HOSHANGABAD.—In the Adamgarh rock-shelters, south of Hoshangabad, exploration by Dr. A. P. Khatri yielded more than two thousand microliths, about 40 p. c. of which were geometric in shape, like crescents, trapezes and triangles.

30. PALAEOLITHS, DISTRICT HOSHANGABAD.—A large number of palaeoliths, including handaxes, cleavers, choppers and scrapers, were found below Dongarwara by Shri D. Sen and the students of the University of Calcutta from a section on the right bank of the Narmada, near the railway-bridge. This section yielded some specimens *in situ,* which were collected together with the matrix.

31. PALAEOLITHS AND FOSSIL, DISTRICT HOSHANGABAD.—A fossil and a bifacial handaxe were discovered by Shri C. Krishna and Shri J. P. Srivastava in the boulder-conglomerate bed of the river Tawa at its confluence with the Narmada, about 6 kilometres from Hoshangabad.

32. ROCK-SHELTERS, PACHMARHI HILLS, DISTRICT HOSHANGABAD.—Dr. A. P. Khatri explored the hilly area between Tamia and Pachmarhi and found a new group of rock shelters with paintings in red and white. The subjects of portrayal were generally analogous

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to those depicted in Adamgarh and Pachmarhi rock-shelters, such as running warriors with bows, arrows, spears and swords and animals and birds, like horses, oxen, monkeys and peacocks.

33. EARLY POTTERY, DISRTICT JABALPUR.—At Kakarahta near Rupnath, black-and-red ware was found by Shri C. B. Trivedi in addition to the Northern Black Polished Ware and some decorated pottery. Ring-wells were also noticed here.

34. MEDIEVAL SCULPTURES, DISTRICT JABALPUR.—Shri C. B. Trivedi discovered a large number of medieval sculptures at Bahuriband, Khamaria and Kulon. Among them were panels and images representing *nava-grahas,* Siva-Parvati, Ravana lifting the Kailasa, Ganapati, Hanuman and Jaina *tirthankaras.* At Sakarwara there is an image of dancing Ganesa and at Sakri that of Chamunda.

35. PALAEOLITHS, DISTRICT JABALPUR.—Shri D. Sen and the research students accompanying him found handaxes, cleavers and choppers from the lower gravels and clays, and flake-blade tools from the upper gravels and clays at Bheraghat on the Narmada, together with mammalian fossils.

36. ROCK-CUT SCULPTURES, DISTRICT JABALPUR.—Rock-cut images of Anantasayi-Vishnu, Mahishasuramardini, Vishnu and Narasimha in Gupta style were discovered by Shri C. B. Trivedi at Sindursi, near the Bahuriband rest-house.

37. STONE IMPLEMENTS, DISTRICT JABALPUR.—Further exploration (1959-60, p. 69) by Shri C. B. Trivedi yielded stone artefacts in the valleys of the Narmada and its tri butary, the Saner. Tools of Series II (Pl. LXIX A) occurred at Bhita, Bhikampur, Deori-Sunwara and Kulon in Tahsil Patan. Microliths were found at Dudwara, Bagrai and Turak khera in Tahsil Patan and Sindursi and Ghatakhera in Tahsil Sihora.

38. CLAY SEAL, DISTRICT MANDASOR.—During the conservation of the monuments at Dhamnar, Shri A. H. Khan discovered a clay seal inscribed with the legend *Chanda-nagiri-mahavihara* in the script of the fifth-sixth century.

39. UPPER PALAEOLITHS AND MICROLITHS, DISTRICT MANDLA.—In the course of the exploration of Narmada valley, Shri D. Sen and a party of research students discovered a rich Stone Age site at Bahmni, 14 kilometres south of Mandla town, on the Banjer, a tributary of the Narmada. The unconsolidated gravels in the river-sections revealed an Upper Palaeolithic flake-blade industry on crypto-crystalline colloidal silica, with the scraper as the dominant tool, besides points and burins. Some microliths were also found with this industry as aslo in the overlying soil.

40. ROCK-SHELTERS, DISTRICT NARSINGHPUR.—A rock-shelter was found by Shri C. B. Trivedi at Bijori on the left bank of the Machha river with paintings in red ochre representing a bison, elephant and cock (pl. LXX). Over them, in white pigments, are scenes of hunting, horse-riding, battle, dance, music and elopement, besides the figure of female riding a lion. In the vicinity were found backed blades of chert and jasper.

41. EARLY HISTORICAL SITE, DISTRICT NIMAR EAST.—In Burhanpur town Shri C. Krishna recovered the Northern Black Polished Ware (pl. LXIX B, 2) and black-and-red (pl. LXIX B, 3-8), thin grey (pl. LXIX B, 1), black burnished, red-slipped and some other red wares from the dump of the foundation-trenches of the local police-quarters. Sherds of glazed ware and grills with fine *jali*-work of the late medieval period also occurred at the site.

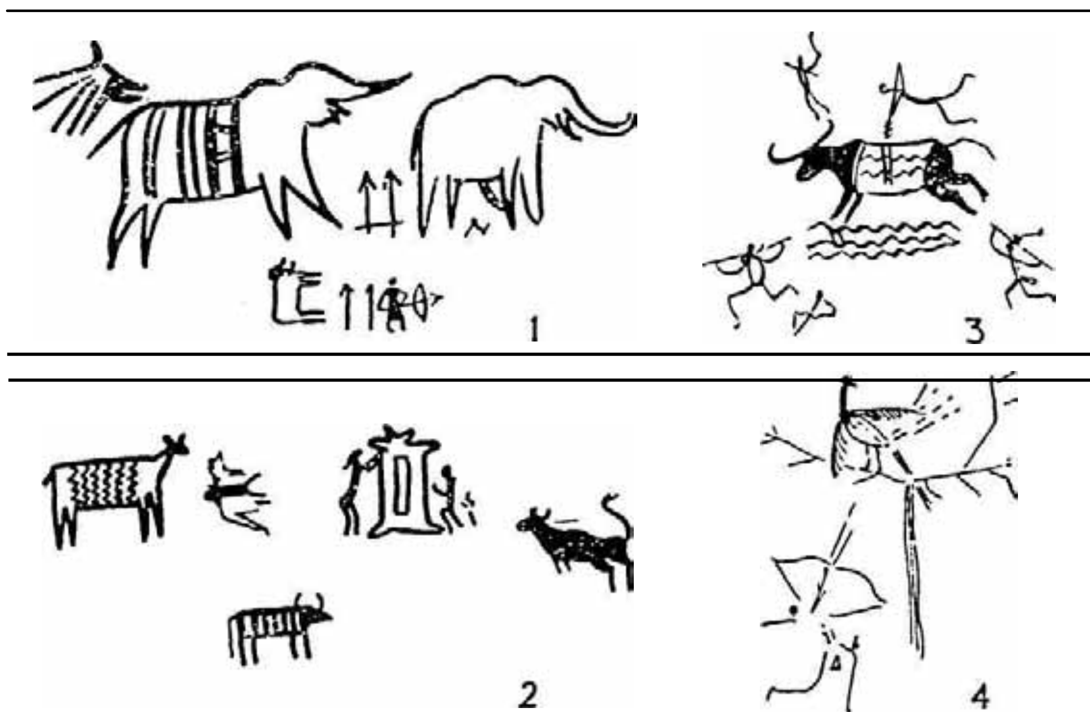
OTHER IMPORTANT DISCOVERIES

42. STONE IMPLEMENTS, DISTRICT NIMAR EAST.—During his continued exploration (1959-60, p. 69), Shri C. Krishna discovered palaeoliths and microliths in the beds of the Chhota-Tawa, Samdeni, Ruprel, Ghorapachhar, all tributaries of the Narmada. Tools of Series I occurred at Badakcshwar, Chandgarh, Bijalpur, Barakund, Mahalkheri, Ambala and Patajan, and of Series II (pl. LXIX A), notably on chert, at Bijalpur, Barakund, Roshini, Mahalkheri, Peepalya-Bawli and Salidana, all in Tahsil Harsud. Microliths consisting of blades, crescents and scrapers and fluted cores were found at Nawala, Nirgudia, Gadabadi, Gambhir, Kishanpur, Ramjipur, Barakund, Roshini, Mahalkheri, Ambala, Peipalya-Bawli, Salidana, Itwa, Patajan and Ranhai.

43. MEDIEVAL TEMPLE AND SCULPTURE, DISRTICT PANNA.—At Mohendra a medieval Brahmanical temple and some sculptures were discovered by Professor K. D. Bajpai. Among them the figure of a *nagi* holding a child (pl. LXXIII A) is interesting. About half-a-dozen Gupta panels depicting scenes from the Ramayana were noticed by him at the well-known site of Nachna.

44. MEDIEVAL TEMPLE AND SCULPTURES, DISTRICT RAIPUR.—The clearance of a pile of debris near the Lakshmana temple at Sirpur by the South-eastern Circle revealed the ruins of a brick temple with two small shrines adjoining each other. A beautifully-carved fragment of a door-jamb and a *chaturmukha-linga* were also found during the clearance.

45. ROCK-SHELTERS, DISTRICT RAISEN.—Shri V. S. Wakankar reported nearly sixty painted rock-shelters near Kharwai (fig. 12), 10 kilometres south of Raisen fort. In one of these shelters a three-lettered inscription in Asokan Brahmi was noticed engraved on the floor of the rock. Another shelter, known as Mahadeva-ki-gupha, contained damaged paintings of *circa* ninth-tenth centuries. They were generally in red and white, the former being the earlier for they were sometimes over-drawn by the latter. Horse-riding was a frequent theme.



12. ***Rock-shelter paintings. Kharwai :*** **1** ***and 2; Bhopal : 3; Kesalpura : 4½***

46. EARLY MEDIEVAL TAMPLES, DISTRICT REWA.—Shri J. P. Gupta discovered remains of Brahmanical and Jaina temples at Gurja, Mehasana, Kalan and Baijnath.

47. EARLY SCULPTURE, DISTRICT SAGAR.—Professor K. D. Bajpai found a stone representation of Gaja-Lakshmi of the Gupta period at Eran (pl. LXXI A).

48. PALAEOLITHS, DISTRICT SAGAR.—Shri C. B. Trivedi discovered palaeoliths comp rising handaxes, cleavers, ovates and scrapers, all on quartzite, in the valley of the river Billa, a tributary of the Dhasan (ancient Darshan) at Dulchipur, Chhan, Bilgavan and Gomatpur. Tools of Series I and II in quartzite were discovered in the bed of the river Bina, a tributary of the Betwa, at Padrajpur and Iswarwada. The industry is marked by the absence of handaxes. Tools of Series II were picked up at Sonrai (pl. LXIX A) near Banda.

49. PALAEOLITHIC SITES AND ROCK-SHELTERS, DISTRICT SAGAR.—Shri V. S. Wakankar and Shri S. K. Pande discovered ten rock-shelters and a rich palaeolithic site, about 10 kilometres to the west of Sagar. The stone tools comprised mainly handaxes, cleavers and discoids.

50. ROCK-CUT CAVES AND STONE IMPLEMENTS. DISTRICT SAGAR.—Professor K. D. Bajpai and a party from the University of Saugor discovered three rock-cut caves with paintings near Abchand. A neolith was picked up at Eran (pl. LXXII A), and palaeoliths (pl. LXXII B) and microliths were obtained from Bhapson, Chandera and Reta, all on the bank of the river Bina.

51. MEDIEVAL SCULPTURES, DISTRICT SATNA.—Stone images of Siva (pl. LXXI B) and other deities were discovered by Professor K. D. Bajpai at Jasso.

52. MEDIEVAL SCULPTURE, DISTRICT SEHORE.—An image of Mahishasuramardini, originally belonging to a temple at Gadia, was discovered by Shri Krishna Deva and Dr. K. C. Panigrahi during a joint inspection.

53. MICROLITHS, DISTRICT SEHORE.—Shri Avinashi Lal and Shri Shiva Kumar Dogra found a number of microliths in the rock-shelters of the Sej-Karad hills on the south-eastern outskirts of Bhopal.

54. PALAEOLITHS, DISTRICT SEHORE.—Shri V. S. Wakankar found some discoids cleavers and tools of Series II near Gauharganj at Bhopal.

55. ROCK-SHELTERS, DISTRICT SEHORE.—During further exploration (1959-60 p. 70), Shri V. S. Wakankar, Dr. R. V. Joshi and Shri M. D. Khare discovered ten painted rock-shelters near Bhinyapura and Kesalpura (fig. 12) near Ubaidullahganj. Shri V. S. Wakankar further discovered seven painted rock-shelters near Bhojapur along the banks of the Betwa. Seven additional rock-shelters were noticed by him near Simla hill at Bhopal (fig. 12). The paintings were generally in red and white, the former being the earlier, for they are overlapped by the latter. Hors-eriders formed a frequent theme in these paintings.

56. PALAEOLITHS, DISTRICT SEONI.—Shri C. Krishna discovered tools of Series II at Kanhiwada.

57. CHALCOLITHIC SITES, DISTRICT SHAJAPUR.—Shri V. S. Wakankar noticed the Malwa Ware and white-painted black-and-red ware at Sarangpur on the south-eastern bank of the Parvati at Banya-Khedi, 3 kilometres off Asloda railway-station and at Singawada nearly 5 kilometres east of Asloda station, on the banks of Gambhir, a tributary of the Chambal.

OTHER IMPORTANT DISCOVERIES

MADRAS

58. JAINA SCULPTURES, DISTRICT COIMBATORE.—Shri D. N. Srinivasa Desikan found some stone images of Jaina *tirthankaras* at Avalppondurai and T. Vellodu in Erode Taluk.

59. URN-BURIAL SITE, DISTRICT SOUTH ARCOT.—Shri K. V. Raman found an ex tensive urn-burial site at Nachchiarpettaimedu near Vridhdhachalam.

60. MEDIEVAL SCULPTURE, DISTIRCT THANJAVUR.—Shri K. R. Srinivasan and Shri S. C. Chandra noticed an important early-Chola sculpture of Ardhanarisvara on the Vas-ishtesvara temple at Karuttittangudi (pl. LXX1II B). The representation is iconogra-phically interesting, as the female features are shown on the right instead of on the usual left.

MAHARASHTRA

61. STONE IMPLEMENTS, DISTRICT AMRAOTI AND WARDHA.—Shri M. V. N. Krishna Rao surveyed the upper reaches of the Wardha river around Amraoti and found fossils at Walgaon in the Pleistocene deposits, together with a few tools of Series 11, other specimens of which, along with microliths, were also obtained from Manjarkhed, Amraoti, Morsi, Sirur and' Meghwari, all in District Amraoti and near Talegaon in Distirct Wardha.

62. CHALCOLITHIC SITES, DISTRICT AURANGABAD.—Shri D. M. Kulkarni located a microlithic factory-site of chalcolithic association at Dhasla on the banks of the river Dudhna. The collection included a large number of flakes, cores, blades, scrapers, crescents, arrow-heads and points, all on chalcedony.

Shri S. G. Gore discovered a chalcolithic site at Badnapur on the bank of the river Dudhna. Microliths on carnelian but largely on chalcedony, black-on-red and black-and-red potsherds, the latter with graffiti, were collected from the site.

Shri Suresh discovered a chalcolithic site on the bank of the river Kundalika at Jaina. Tools of Series 11, microliths and black-painted red pottery figured in his collection.

63. ROCK-CUT CAVES, AURANGABAD.—Recent clearance undertaken by the South-westerm Circle of the Survey near Cave 6 in the second group of Buddhist caves brought to light a cave-temple hitherto sealed with debris and boulders fallen from the cave-roof. Entered through the central door provided in a screen-wall, it is a plain excavation with a forecourt and an oblong hall. Besides the Buddha images on the right wall, there exists also a panel of. *sapta-matrikas* accompanied by Siva, Durga and Ganesa, revealing thus the occurrence of Hindu gods for the first time at Aurangabad.

64. ROCK-CUT CAVES, DAULATABAD, DISTRICT AURANGABAD.—At Daulatabad, on the outer fringe of the moat to the left of the main inner stepped entrance of the fort, a series of caves, datable roughly to the eleventh-twelfth centuries, were exposed by the South-western Circle of the Survey. Clearance yielded coins, beads, terracotta tablets and sealings, lead pieces and miscellaneous iron objects.

65. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—During the clearance of the caves by the South-western Circle new features came to light in several caves. Cave 1 revealed a pillared front portico with an elevated floor and cells at the ends. In Cave 3 there exists a pillared verandha on the front at the same level as the floor of the cave. The verandah is raised on a plinth with bold mouldings with a flight of steps in the centre.

The hidden portion of the floor of Cave 4 was also exposed. In Cave 12 a wide raised platform was exposed in front of the screen-wall. The platforn has heavy mouldings in familiar designs and is reached by a flight of steps in the centre. Clearance in front of Cave 21 exposed a high plinth of the spacious front court and several brick walls of uncertain character.

Pieces of bowls and sprinklers of thin Red Polished Ware were noticed in front of Cave 1. The clearance of the front of Cave 21 yielded a vast array of antiquities like coins (above, p. 56), coin-moulds (pl. LXXIV B), beads, seals and pottery, datable from the early historic period to modern times. Most significant among the finds are two terracotta cylinder-seals of identical dimensions, possibly used for stamping pottery, one depicting an elephant being driven by a male and the other showing a wavy creeper. Another terracotta stamp and some stamped sherds were also found (pl. LXXIV A). Of interest also are an inscribed copper signet-ring (pl. LXXIV C) reading .... *esvarah*, palaeographically ascribable to the third-fourth centuries; an oval ring-stone with the intaglio of a crab representing capricornus, a zodiacal sign (pl. LXXIV D) and an oblong stone tablet seal with a man seated in *yogasana* and holding indistinct objects (pl. LXXIV D). Beads of carnelian, agate, lapis lazuli, faience, paste, crystal, etc., of different well-known shapes (pl. LXXV A), personal ornaments like shell bangles and ear-discs of ivory and stone, dabbers and pellets of stone, iron chisels and arrow-heads, terracotta figurines and small stone plaques of cult-import (pl. LXXV B), representing divinities like Devi, Vishnu, Narasimha and Ganesa, were also found.

66. STONE IMPLEMENTS, DISTRICT PARBHANI.—In the course of his survey.of the Purna basin Shri S. N. Raghunath discovered tools of Series - II and microliths from stratified deposits at Siddeswar, Rupore, Dhar, Sawangi and Yellari. The river-section at the dam-site near Siddeswar was interesting, as here the calcareous deposit yielded fossils of *Elephas* and *Bos* in association with a few implements of Series II.

MYSORE

67. CISTS AND STONE CIRCLES, DISTRICT BANGALORE.—The Director of Archaeology, Mysore State, reports cists and stone circles on both sides of the road leading to Devanahalli.

68. RUSSET-COATED WARE, DISTRICT BANGALORE.—Sherds of the Russet Coated Ware with wavy and criss-cross patterns in kaolin were picked up from an ancient site at Tarabanahalli by the Department of Archaeology, Mysore State.

69. FORTRESS. DISTRICT BELGAUM.—A well-preserved fortress, octagonal on plan and with circular bastions at corners, was noticed at Sondatti by the Department of Archaeology, Mysore State.

70. STONE IMPLEMENTS, DISTRICT BIJAPUR.—Shri A. Sundara discovered microliths and tools of Series II at Salvadgi (pl. LXXVI A), Matkandevanhalli and Kuchval. The assemblage included scrapers, parallel-sided blades and fluted and other cores, some of the last-named specimens showing the crested guiding ridge.

71. MEDIEVAL TEMPLES, DISTRICT DHARWAR.—At Sudi two fine temples in Chalukyan style dating from about the eleventh century came to the notice of the Department of Archaeology, Mysore State. One of these is known as the Mallikarjuna and the other as Jod-Kalasgudi.

OTHER IMPORTANT DISCOVERIES

72. CHALCOLITHIC AND EARLY HISTORICAL SITE, DISTRICT GULBARGA.—Shri K. V. Soundara Rajan and Shri A. Sundara further surveyed the chalcolithic mound at Urchan, discovered in 1958 by the latter, and collected, besides neoliths, microliths and pottery, a long spiral copper bead, a fine dark brown blade of Series II of jasper and a grey potsherd indicating the use of the paring technique. The latter also found fluted cores and parallel-sided blades of chalcedony and sherds of the Jorwe Ware, Red Polished Ware, Black-and-Red Ware, Russet-coated Painted Ware and beads of lapis lazuli and glass (pl. LXXVI B).

73. MEGALITHIC SITES, DISTRICT MYSORE.—Shri C. Krishnamurti found some cairn-circles and cists in Chamarajanagar and Yelandur Taluks.

PANJAB

74. PAINTED GREY WARE, DISTRICT KARNAL.—Shri S. B. Chaudhary discovered the Painted Grey Ware at Bahola, 13 kilometres to the north-west of Panipat, Asandh, 32 kilmetres to the south-west of Karnal, Jorasi-Khurd, 5 kliometres to the north-west of Pehowa, Morthali, 3 kilometres from Pehowa, Urnai, 5 kilometres from Pehowa, Sarsa Bhor, 11 kilometres to the west of Thanesar, Kheri, 10 kilometres to the east of Pipli (pl. LXXVII A) and Daulatpur, 6 kilometres to the east of Pipli. He also found fragments of the sprinkler in the typical Red Polished Ware at Kohond.

75. MEDIEVAL SCULPTURES, DISTRICT ROHTAK.—Stone sculptures of the medieval period were reported by Shri S.B. Chaudhary from Bulandpur-Kheri, 4 miles from Ganaur in Tahsil Sonepat

76. PAINTED GREY AND N. B. P. WARES, DISRITCT ROHTAK.—Shri S. B. Chaudhary discovered the Painted Grey and Northern Black Polished Wares at Gumad and Akabarpur-Baroth (pl. LXXVII A) in Tahsil Sonepat.

RAJASTHAN

77. MEDIEVAL SCULPTURES, DISTRICT AJMER.—Serveral sculptures were collected from Baghera by the Department of Archaeology and Museums, Rajasthan.

78. SCULPTURES, DISTRICT ALWAR.—Further clearance (1959-60, p. 74) of the ruined temples of Kot-ki-Deoli and Hanuman-ki-Deoli at Garh below (p. 91) by the North-westrn Circle of the Survey exposed part plans of the monuments. A number of Jaina and Brahmanical sculptures and a marble sculpture of a donor and his wife bearing an inscription dated in *samvat* 1239 are among other important finds.

79. MEDIEVAL SCULPTURES, DISTRICT BARMER.—Among the medieval sculptures discovered and acquired by the Director of Archaeology and Museums, Rajasthan, from Kiradu were some beautiful penals depicting female figures from Kiradu.

80. MEDIEVAL SCULPTURES, DISTRICT BHARATPUR-.—The Curator, Bharatpur Museum, discovered several medieval sculptures in the District, representing mostly Bra hmanical deities.

81. TEMPLES AND SCULPTURES, DISTRICT BHILWARA.—Shri S. A. Sastri discovered temples of about the sixteenth century at Pur. From a Jaina temple two Jaina images of bronze and stone bearing inscriptions of *samvat* 1577 and *samvat* 812 respectively were found.

82. MEDIEVAL SCULPTURES, DISTRICT JAIPUR.—The Director of Archaeology and Museums, Rajasthan, discovered and acquired some medieval sculptures assignable to the twelfth-thirteenth century from Bhandarej.

83. RING-WELLS, DISTRICT JHALAWAR.—The Superintendent, Archaeology and Museums, Udaipur, noticed some terracotta ring-wells at Gangadhar.

84. CENOTAPH, DISTRICT JODHPUR.—A cenotaph in the form of a *chhatri* of red sandstone, containing an inscribed marble tablet in corrupt Rajasthani language, dated in *samvat* 1852, was discovered by Shri N. M. Ganam in Chakhu village.

85. MEDIEVAL SCULPTURES, DISTRICT KOTAH.—The Curator, Kotah Museum, discovered and acquired medieval stone sculptures assignable to the ninth-tenth centuries from Kakoni.

86. COPPER HOARD, DISTRICT NAGAUR.—Among the objects in the Museum at Jodhpur, Dr. H. D. Sankalia, Dr. B. Subbarao and Shri V. N. Mishra noticed a copper hoard from Khurdi, consisting of a flat copper axe, a bar celt, thin curved blades and a channel-spouted bowl (pl. LXXVII B), analogous in size and shape with the pottery vessel from Peorid III of Navdatoli.

87. MEDIEVAL TEMPLE AND SCULPTURES DISRICT NAGAUR.—Shri N. M. Ganam discovered a red sandstone temple, stylistically datable to about the fourteenth century, in Khundald. A broken sculpture of Mahishasuramardini was found on the platform in the sanctum.

88. MEDIEVAL SCULPTURES, DISTRICT SIROHI.—The Director of Archaeology and Museums, Rajasthan, discovered and acquired several medieval stone sculptures from Chandravati assignable to the twelfth-thirteenth centuries. The more important among them represented Uma-Mahesvara, Anantasayi-Vishnu, standing Vishnu, and a dancing-panel showing two ladies playing on the flute and the *vina*.. Two terracotta plaques represent ing Gogaji of the seventh-eighth century were also acquired.

UTTAR PRADESH

89. EARLY HISTORICAL SITE, DISTRICT BASTI.—At Bansi-Sonari, a habitation-site with brick structures, Shri R. G. Pandeya noticed ring-wells, potsherds and terracotta figurines, probably of Kushan period.

90. OCHRE-COLOURED WARE, DISTRICT BULANDSHAHR.—Shri R. C. Sharma reported ochre-coloured pottery from Manpur and Bhatpura, west of the present bed of the Ganga. Shri O. P Tandon, on a subsequent exploration, found potsherds of Harappan affinities including dish-on-stand, pedestalled bowl, ring-base of jar, basin with flanged rim and some other types, which are identical or have close parallels with the pottery from Baha-darabad.

91. MEDIEVAL TEMPLES AND SCULPTURES, DISTRICT ETAH.—The remains of two early medieval temples, one at Thana Danoganj and another ar Bhaduivamath, were dis covered by Shri S. B. Singh,

92. PAINTED GREY AND N. B. P. WARES, DISTRICT ETAH.—Shri S. B. Singh dis covered the Painted Gery Ware at Shahpur, Timarua, Takhawan, Gone-Umargarh and Nokhera, the last three also yieding the Northern Black Polished Ware.

93. PAINTED GREY AND N. B. P. WARES, DISTRICT FATEHPUR.—Shri L. M. Wahal discovered sherds of the Painted Grey and Northern Black Polished Wares at Khaga.

94. MOSQUE, DISTRICT GHAZIPUR.—A mosque of the Mughul period, with a Persian inscription of the time of Shah Jahan, was noticed by Shri R. G. Pandeya at Sayidabad.

95. MEDIEVAL TEMPLE, DISTRICT KANPUR.—Shri L. M. Wahal discovered the remains of a brick temple at Nabiya-Khera, assignable to about the tenth century.

96. PAINTED GREY AND N. B. P. WARES, DISTRICT LUCKNOW.—Shri S. B. Singh discovered Painted Grey and Northern Black Polished Wares at Dadupur and Northern Black Polished Ware at Qila Muhammadinagar in the vicinity of Lucknow city.

97. PAINTED GREY AND N. B. P. WARES, DISTRICT MAINPURI.—Shri L. M. Wahal found the Painted Grey Ware at Kodar, Ginoli, Patara, Kalai, Utrara, Kusyami and Kodar. The last site also yielded the Northern Black Polished Ware.

98. ROCK-PAINTINGS, DISTRICT MIRZAPUR.—Rock-paintings portraying animals, birds, scenes of dancing, fighting and marching were discovered at Mukha-Dari by Shri R. G. Pandeya.

99. SCULPTURES, DISTRICT MIRZAPUR.—A large number of stone images, representing Uma-Mahesvara, Ganesa, Karttikeya, Nandi, etc., belonging to medieval period, was discovered at Sat-Duari by Shri R. G. Pandeya.

100. PAINTED GREY AND N. B. P WARES, DISTRICT NAINITAL.—Shri K. P. Nautiyal reported the Painted Grey Ware from Thakurdwara and Northern Black Polished Ware from Kashipur. He also reported a stone image of Trivikrama, 1.20 metres in height, bearing the name of the carver in Gupta script.

WEST BENGAL

101. MICROLITHS, DISTRICT BANKURA.—The State Department of Archaeology, West Bengal, noticed microliths at Kalla-Lalbazar, Manoharand Saharjora, along the Damodar river, and at Kankradara, Kachinda and Jhargram along the Kangsabati and at Jaypanda along the river of the same name.

102. MEDIEVAL SCULPTURES, DISTRICTS BIRBHUM, PURULIA AND WEST DINAJPUR.—The Directorate of Archaeology, West Bengal, discovered and acquired several stone sculptures of Pala period from different sites in West Bengal from the vicinity of Bhutan down to the plains. The Districts of Birbhum (pl. LXXVIII A), Purulia (pl. LXXVIII B) and West Dinajpur (pl. LXXVIII C-F) yielded particularly interesting sculptures.

103. MICROLITHS AND EARLY POTTERY, DISTRICT BURDWAN.—The State Department of Archaeology, West Bengal, discovered microliths at Sagar-Bhanga and Khrupir-Jangal on the river Damodar, at Gopalpur and Arrah on the river Kunoor, and at Satkahonia and Bilgava on the Ajoy. At a mound at Rajar-Dhipi, near Bhedia, some microliths and black-and-red pottery were also noticed.

104. WOOD SCULPTURES, DISTRICT BURDWAN.—The State Department of Archaeology, West Bengal, collected a carved and painted wooden figure of an *apsaras* in life-size, assignable to the end of the eighteenth century.

105. MEDIEVAL TEMPLE, DISTRICT JALPAIGURI.—At Maynaguri, a brick temple called Batesvara, was noticed by the State Department of Archaeology, West Bengal.

106. MEDIEVAL TEMPLE, DISTRICT MIDNAPUR.—The State Department of Archaeology, West Bengal, noticed a brick temple in ruins dedicated to Bhairava at Organda.

107. MICROLITHS, DISTRICT MIDNAPUR.—The State Department of Archaeology, West Bengal, discovered microliths at Organda and Sildah along the river Tarafeni.

108. ANCIENT TERRACOTTAS, DISTRICT 24-PARGANAS.—The State Department of Archaeology, West Bengal, recovered numerous ancient terracotta figurines from Chandraketugarh. Terracottas were also discovered from Boral on the Adiganga, a few kilo metres south of Calcutta.

109. NEOLITHS AND EARLY POTTREY, DISTRICT 24-PARGANAS.—From Harinarayanpur the State Department of Archaeology, West Bengal, collected a polished stone celt, a Brahmani bull and a potsherd inscribed in Kharoshthi of about the first century A. D. and mentioning the name *Mitradharma.*

V. MUSEUMS

1. SITE-MUSEUM, AHAR.—Show-cases for the display of antiquities were got ready.

2. RAJPUTANA MUSEUM, AJMER.—Among the important pieces acquired were a bust of red sandstone of the late Gupta peroid and a few broken statues from Baghera (1959-60, p. 76). Besides, fifty-six silver coins of the late Mughuls were added to the coin-cabinet.

3. ALLAHABAD MUSEUM, ALLAHABAD.—The Museum acquired twenty-six sculptures, two hundred and eighty-seven terracottas, four hundred and sixty-four gold, silver and copper coins. Two inscriptions and twenty-eight seals and sealings were also added. The most outstanding sculpture was an image of Vishnu of early Gupta period, from Jhusi (pl. LXXIX A). An image of Karttikeya seated on a peacock (pl. LXXIX B), from Kanauj, and an early Gupta bust of the Buddha, from Behar in Pratapgarh District, and a terracotta *Ekamukha-linga* (pl. LXXIX C), from Mathura, were other important pieces. One of the sealings from Kausambi had an inscription *pativedana* in Brahmi characters of about 300 B. C. The site of Jhusi also yielded a number of sealings. One had the legend *sabakasa* in Brahmi characters of about 200 B.C. From Kausambi came also a fragmentary sculpture with an inscription mentioning the name of king Bhadramagha and the year 83. A copper object, supposed to be a handle of a sword, from Kausambi, was equally noteworthy, as it exhibited a standing female figure flanked by horse-riders and a standing male figure on the obverse, while the reverse showed a tree-in-railing and a hut.

4. GOVERNMENT MUSEUM, ALWAR.—The year's collection included some sculptures from Sainthali, District Alwar, of the thirteenth century, an unidentified goddess, a Bhairava seated on a lotus, and a broken lintel with nine (three males and six females) figures in *tribhanga* pose.

5. ARCHAEOLOGICAL MUSEUM, AMARAVATI.—A headless statue of a Jaina *tirthankara*, twenty-five terracotta beads and five Andhra coins were acquired. The reserve-collection of the Museum was arranged in a separate rented building, while in the Museum itself more exhibits were displayed.

6. GOVERNMENT MUSEUM, BANGALORE.—A collection of fifty-eight war-medals and ribbons was received from the Government of India, Ministry of Scientific Researh and Cultural Affairs, and six gold coins, along with a metallic jar, unearthed near the Gol-Gumbad, Bijapur, from the Archaeological Survey of India. Three of these coins pertain to Muhammad 'Adil Shah (1626-80) of Bijapur. The Museum issued twelve picture-postcards.

7. MUSEUM AND PICTURE-GALLERY, BARODA.—Seven stone sculptures of medieval period were collected from various places in Mehsana District. Two fine stone images, one of Ganesa (pl. LXXIX D) and the other of Siva Bhikshatanamurti (pl. LXXIX E) of the tenth-eleventh centuries, as also a south Indian bronze image of Siva of about the eighteenth century were purchased.

8. STATE MUSEUM, BHARATPUR.—The more important sculptures in the collection were provided with wooden pedestals in the Darbar Hall. Improvement in the display of arms was carried out. The Arts Section was enriched by fifty-three paintings of which twenty-eight were on mica.

9. STATE MUSEUM, BHUBANESWAR.—More palm-leaf manuscripts were added to the already-rich collection of the kind (1959-60, p. 77).

10. KUTCH MUSEUM, BHUJ.—The Museum acquired a Jaina statue from Manpur-Vasad-Palanpur. The Collector of Kutch made a gift to the Museum of a piece of cloth made out of the bark of a tree used by people in Africa, a silver key mounted on stand and a silver *chunayada* with a wooden handle.

11. ARCHAEOLOGICAL MUSEUM, BODH-GAYA.—Seven hundred and fifty-two sculptures were added to the collection. Labels and charts were rewritten, pedestals repolished and show-cases remodelled. Improved methods of display were adopted.

12. ASUTOSH MUSEUM OF INDIAN ART, CALCUTTA.—As in the previous year (1959-60, p. 77), this year also the Museum acquired over a thousand antiquities by excavation and exploration. The excavation was mainly done at the old site of Chandraketugarh (above, p. 39), while exploration was carried out extensively in the lower and central parts of West Bengal, with the collaboration of a team of workers. Terracottas from Harinarayanpur included a protohistoric piece in the shape of a forepart of a bull with a fan-shaped hump and perforated mouth (pl. LXXX A), and a fan-tailed bird of equally archaic character. From the same site were obtained terracotta figurines of Sunga-Kushan affinity as well as about two hundred beads of precious and semi-precious stones, a few of them of the etched variety. From Bagridihi, District Midnapur, came a stone bar-celt (pl. LXXX B), supposedly neolithic, comparable with similar implements from Ban-Asuria and Bankura. Chandraketugarh again yielded a large number of antiquities datable from the Maurya period down to the Gupta period. Noteworthy among them were some unique punch-marked coins of the dolphin type, exhibiting a ship. A terracotta sealing belonging to the early Kushan period also bore a ship motif with details. Another remarkable terracotta plaque showed an elegant female figure playing on a harp (Sarasvati ?). Two fragments of a rare terracotta vase probably depicted the epic legend of Varuna abducting Bhadra on a winged *makara* attended by *apsaras* (pl. LXXX C), of about 200 B.C., are also included in the collection. Terracotta toy-carts and figurines of Indra or Kubera seated on a winged elephant (pl. LXXX D), Agni riding a chariot drawn by a pair of rams (pi. LXXX E), a ram-rider (pl. LXXX F) of the Sunga period and another terracotta chariot driven by a pair of bulls with a royal personage or a Vedic deity, of the Kushan period, were some of the more remarkable pieces.

Exploration at Pokarna, District Bankura, yielded two punch-marked silver coins, a copper cast coin with tree-in-railing motif, a terracotta tablet showing a pair of bulls (?) supporting an emblem in the centre, and a fragmentary terracotta elephant-cart of a failry early period. From Tilda, Midnapore, came a terracotta sealing with the legend *sri Bhadrasya* in late Gupta characters and a terracotta Jaina figurine (pl. LXXX G). At Rangamati, District Murshidabad, were recovered a small terracotta sealing inscribed with the usual Buddhist creed in characters of about the eleventh century, as well as some stone sculptures of great iconographic significance, including a mutilated image of Lakulisa (pl. LXXXI A) and a Nandin (pl. LXXXI B) of about the seventh century. A Jaina image, from Khatra, District Bankura, a large image of Vishnu-Lokesvara under the canopy of a seven-hooded snake (pl. LXXXI C), from Sardanga, District Burdwan, an image of Cha-munda (pl. LXXXI D), from Burdwan, a black-stone Vishnu plaque from Tilda, District Midnapore, and a Rama-Lakshmana plaque from Kartickpore, District 24-Parganas, of the early medievel period, were some of the other notable pieces in the collection. '

Acquisitions through gift and purchase included early medieval images of Surya Vishnu, *nava-grahas*, and a *linga* with four seated *saktis* (pl. LXXXI E). From Ganjam were a metal Lakshmi of remarkable delicacy (pl. LXXXI F) and a wooden *nayika* (pl.

LXXIX F). A Lakshmi-and-Sarasvati shrine on a wheeled elephant (pl. LXXXI G) and a standing Lakshmi with containers on the back of an elephant, both from Bankura and of the seventeenth-eighteenth centuries, were the other notable acquisitions.

13. INDIAN MUSEUM, CALCUTTA.—Six hundred and eighty-two coins (gold, silver, copper, nickel and bronze) and one hundred and forty-three other antiquities were added to the collection. Notable among them were : hitherto-unknown coins of Sultan'Alau'd-Din Firuz Shah (pl. LXXXII A) and 'Alau'd-Din Mahmud Shah of Bengal, received from the Collector, Malda, West Bengal ; a Sunga terracotta plaque, from Chandraketugarh, depicting the *Dummedha-Jataka;* a palm-leaf manuscript of the *Harivamsa,* dated A. D. 1278; three illustrated manuscripts, respectively of the *Bala-paddhati,* eighteenth-nineteenth century, *Aparimita-nama-Mahayana-sutra* (pl. LXXXII B), eighteenth century and *Sri-mad-Bhagavad-Gita,* nineteenth century; and a *sanad* of Shah Jahan (pl. LXXXII 1) issued in A.H. 1066 (A. D. 1655-56).

Further progress was made in the modernization of the galleries. The sculptures in the Mathura Bay were provided with improved wooden pedestals. The sculptural fragments of the Gupta temple at Bhumara in the Bhumara Bay were re-arranged with a proper background, so as to give an idea of the original temple itself.

The re-organization work in the Gandhara Gallery (1959-60, p. 79) was almost completed. In the Prehistory Gallery, the arrangement of the Indian objects was re-oriented (pls. LXXXIV and LXXXV). Two more show-cases were remodelled to display the Mesoli-thic Culture of Europe. Some stone inscriptions were chronologically arranged against the background of asbestos-sheets in the new Inscriptions Gallery on the first-floor verandah. Additional maps, charts and labels were provided in the galleries. About twenty-four thousand antiquities were re-accessioned on sound lines.

14. CHANDRADHARI MUSEUM, DARBHANGA.—The acquisition during the year in cluded a copper-plate charter, twenty palm-leaf and other manuscripts (pl. LXXXVI), four paintings and five armoury objects. The copper-plate grant, dated in Saka 1582, is of considerable historical importance inasmuch as it throws light on the extent of the territory of Nepal at the time of the grant. The textile gallery was re-arranged so as to make it more attractive.

15. ARCHAEOLOGICAL MUSEUM, RED FORT, DELHI.—The process of the modernization of the galleries continued (1959-60, p. 79). Six of the show-cases were re-modelled by the provision of a suitable background and improved lighting-arrangements for the display of pottery, arms, textiles, coins, etc. Bilingual labels were provided to stone inscriptions.

16. STATE MUSEUM, GAUHATI.—The sculptures acquired for the Museum included a stone lion standing on its hind legs and a slightly-damaged white marble Ganesa seated in the *lalitasana* or *ardhaparyankasana* pose on a full-blown lotus. The other acquisitions included a bull of white marble, some wooden, metal and textile objects, four silver coins of Naranarayana, Saka 1477, and a manuscript of the *Namaghosha.*

17. CENTRAL ARCHAEOLOGICAL MUSEUM, GWALIOR.—A number of improvements were carried out in the Museum. The paintings, which had hitherto remained in the strong room, were properly mounted and displayed in the Paintings Gallery. Similarly, all the coins that had formerly been kept in the strong room were put on display. The gallery exhibiting copies of the paintings of the Bagh Caves was suitably re-organized and made more attractive. The excavated antiquities, which formerly had no space for dis play, were exhibited in a new gallery.

18. ARCHAEOLOGICAL MUSEUM, HAMPI.—The process of the sorting out of the objects for reserve-and type-collections was continued. Wooden pedestals were provided for the exhibits. Manuscripts and copper-plate grants were properly displayed.

19. STATE MUSEUM, HYDERABAD.—The Museum acquired fifteen bronze images, of which thirteen came from Bapatla, Guntur District, while the other two, of Rama, Lakshmana and Sita, of the Vijayanagara period, were discovered at Kopparam in the same District.

All the antiquities of Yelleswaram were arranged in the newly-constructed Yelles-waram Pavilion.

The coin-cabinet received an addition of two thousand nine hundred and seventy-one coins during 1959-60 and two thousand ninety-nine coins during 1960-61. These included gold, silver, lead and copper coins and represented eleven dynasties Ikshvaku, Kadamba, Western Chalukya, Vijayanagara, Khilji, Tughluq, Bahmani, Mughul and British. A hoard of two hundred and seventy-one lead coins of the Ikshvaku dynasty, found near Ongole, was acquired. In the course of a physical verification of the previously-acquired coins, it was found that there existed a coin of the period of Shah 'Alam II issued from Iman-Nagar fort, a mint hitherto unknown.

On examination of certain old hoards of the Atrafi Badshah were found several remarkable ornaments of the Vijayanagara period.

In addition, several copper-plate grants, such as those of Raja-Rudra, a general of king Prataparudra, Yellanadeva, a vasal and relative of Rudramadevi of the Kakatiya dyansty, Pulakesi II of the Western Chalukyan dynasty and Harivarma, son of Prithvimula of the Godavari plates, were brought to the Museum.

20. CENTRAL MUSEUM, INDORE.—Two guns and one pistol were acquired for the Accountrements Section and four exhibits were added to the Fine Arts Section.

21. CENTRAL MUSEUM, JAIPUR.—The year's collection included three copies of the Qur'an, one of which was of the time of Shah Jahan, nineteen Raga-Ragini paintings of the Jaipur School, three old paintings of the Udaipur School, a Rajasthani turban of brocade, a gridle, two bodices, a *angarkhi* and four *lugaris.*

22. JAMNAGAR MUSEUM, JAMNAGAR.—The galleries were re-organized. Some of the useless exhibits were auctioned away.

23. SARDAR MUSEUM, JODHPUR.—The fresh acquisitions to the Museum included eight water-colour paintings, an Egyptian coin, fourteen sculptures and five metal objects.

24. JUNAGADH MUSEUM, JUNAGADH.—The galleries were re-arranged. The Sculp ture Gallery was sub-divided into four sections : Vishnu, Surya, Jaina and miscellaneous. The work of labelling the Persian inscriptions was completed.

25. ARCHAEOLOGICAL MUSEUM, KHAJURAHO.—Two stone sculptures, one of mother-and-child and the other of a Jaina *tirthankara,* were acquired. Modern wooden pedestals were provided to some of the exhibits.

26. ARCHAEOLOGICAL MUSEUM, KONDAPUR.—Over one hundred and sixty-five microliths and flake-tools were acquired. Re-accessioning of the museum-ojects was completed and nearly five thousand index-cards were prepared. Three maps and charts were exhibited in the galleries and wooden pedestals provided to the terracotta figurines.

27. MUSEUM AND SARASWATI-BHANDAR, KOTAH.—The year's acquisitions included one hundred and fifty-four old paintings presented by Shri Maharao of Kotah and one

hundred and fourteen manuscripts presented by Shri Amba Shankar Gujrati. New showcases and pedestals for sculptures were provided.

28. FORT ST. GEORGE MUSEUM, MADRAS.—The process of modernizing the galleries continued. Eight wall-cases and two table-cases were prepared with suitable background and lighting for the display of porcelain, silver-ware, gems, medals, etc. Two hundred and twelve coins, medals, porcelain-ware, etc., were added to the collection, besides twenty-eight pieces of ceremonial dresses of the British Regiment, presented by the Ministry of. Defence, Government of India.

29. GOVERNMENT MUSEUM, MADRAS.—Twenty metal images were acquired as treasure-trove finds. Two of them, viz. Ardhanarisvara and Chandikesvara, acquired from Tiruvengadu, District Thanjavur, were of great interest. An inscription in the local temple, dated A. D. 1045, states that Ardhanarisvara was under regular worship and that some gifts were made for offerings to this god. Presumbly the figure was made under orders of Rajaraja Chola. It is interesting to note that a group of bronzes was unearthed from the same village some years ago. A stone sculpture of Ardhanarisvara was also acquired.

30. MUSEUM, DEPARTMENT OF ARCHAEOLOGY, MYSORE.—The year's acquisitions included nine gold ornaments, presumably of the Vijayanagara period, one hundred and twenty-three silver coins of the Nizams of Hyderabad, twenty-three copper coins of the late Vijayanagara and Mysore rulers, and twenty-eight gold coins of Varaha and half-*varaha* types of the Vijayanagara king Krishnadevaraya, as well as pottery having different graffiti excavated at T. Narasipur.

31. ARCHAEOLOGICAL MUSEUM, NALANDA.—Exhibits were arrranged in the three newly-constructed galleries.

32. NATIONAL MUSEUM, NEW DELHI.—The Museum shifted to its new and per manent home on the 18th December, 1960. A respresentative selection of archaeological objects was displayed in seven galleries on the ground floor. On view are exhibits from prehistoric and protohistoric sites, stone and bronze sculptures, terracottas and stuccos, spanning a period from the fourth century B. C. to the eighteenth century A. D. Maps as well as bilingual introductory and individual labels were provided in the galleries. Some outstanding bronzes and Pala sculptures were acquired during the year. A number of antiquities from protohistoric sites were received from the Archaeological Survey of India.

33. PATNA MUSEUM, PATNA.—The year's acquisitions included thirty-seven antiquities and sixteen coins. The former included : a stone pestle having Mauryan polish, a stone crowned Buddha standing on a double-lotus pedestal, flanked by Dhyani-Buddhas and Bodhisattavas, of the tenth century ; a standing Avalokitesvara flanked by Dhyani-Buddhas and female attendants, also of the tenth century ; a stone image of Sitala riding an ass with a broom-stick in her right hand, of the seventeenth century ; a sculpture depicting a male figure (probably Gautama) riding a horse, attended by an umbrella-bearer on the left, of the eleventh century ; a stone Tara of the tenth-eleventh century ; and a stone Buddha seated in *bhumisparsa-mudra*, flanked by Maitreya and Avalokitesvara, of the tenth century. The most outstanding of all was a stone bowl of Chunar sandstone, having a Brahmi inscription running the entire round of its brim. The inscription bears a date in the year 108 of an unspecified era, and refers itself to the reign of a ruler named Arya-Visakhamitra in characters of the first or the second century A. D.

Of the coins, fourteen were silver, one billon and one zinc. Of the silver coins, two were of Shah Jahan, three of Islam Shah, and nine of Vigrahapala. The billon coin possibly

belonged to 'Alau'd-Din Khilji, Sultan of Delhi, while the zinc one was in reality a seal inscribed with the name of Qazi Ghulamu'd-Din A. H. 1211.

34. MAHANT GHASIDAS MEMORIAL MUSEUM, RAIPUR.—The Museum acquired one hundred and sixty-two copper coins from different sources. The publication of the descriptive catalogue reached an advanced stage of printing. New show-cases, pedestals, etc., for exhibiting objects of the prehistoric and protohistoric cultures were prepared. The Inscriptions Gallery was vastly improved with maps, charts and descriptive labels.

35. ARCHAEOLOGICAL MUSEUM, RAJKOT.—The year's collection contained five hundred and seventy coins, some of them of the Gupta period, acquired from Taluka Treasury, Gondal, a figure of the Pratihara period, acquired by Shri M. A. Dhaky from Nagna near Jamnagar, a Varaha image of the same period, acquired by Shri C. M. Atri, an image of Parsvanatha and another of Ambika from Talaja.

36. ARCHAEOLOGICAL MUSEUM, UNIVERSITY OF SAUGOR, SAGAR.—In addition to a large number of palaeoliths and microliths from Districts Sagar and Hoshangabad, a number of sculptures, terracottas, beads and coins were acquired, mostly from Madhya Pradesh. The notable acquisitions were a statue of Varaha and another of Narasimha from Eran, as also an image of Gaja-Lakshmi and torso of *naga* figure, both belonging to the early Gupta period. The coin-cabinet was enriched by the addition of punch-marked and tribal coins from Eran, Vidisa and Ujjain, as well as by a gift from the Collector of Sagar of thirty silver coins belonging to Shah Jahan and Aurangzeb. From the Allahabad Museum was received a present of some inscribed sealings from Jhusi.

37. ARCHAEOLOGICAL MUSEUM, SANCHI.—The reserve-collection of the Museum was shifted to the newly-acquired building, formerly of the Janta College, at the foot of the hill.

38. ARCHAEOLOGICAL MUSEUM, SARNATH.—Additional space for the display of objects in the Varanasi Gallery was provided. Improvements were made in the Main Hall and in the Gupta and Medieval Galleries. The process of re-accessioning, indexing, sorting out and classification of antiquities continued.

39. Tipu Sultan Museum, SERINGAPATAM.—A model of the Seringapatam fort was prepared in plaster and displayed in the Museum. A paper manuscript showing the relationship of Tipu Sultan with a local family was acquired. Photostat copies of a rare manuscript called *Hukum-nama* were also obtained. All the Museum-objects were accessioned.

40. PRABHAS-PATAN MUSEUM, SOMNATH.—About twenty stone images were acquired from the neighbourhood of Prabhas.

41. VICTORIA HALL MUSEUM, UDIAPUR.—Paintings acquired from the Saraswati Bhawan, Udaipur, were properly mounted and displayed.

42. BHARAT KALA BHAWAN, VARANASI.—A cross-bar of the railing from Bharhut acquired previously (1959-60, p. 82), is reproduced here (pl. LXXXVII).

VI. ARCHITECTURAL SURVEY OF TEMPLES

1. NORTHERN REGION.—The Northern Region of the Temple-survey Project of the Survey, under Shri Krishna Deva, surveyed the pre-Solanki temples of Gujarat with the help of Shri M.A. Dhaky of the Department of Archaeology, Gujarat State. The earliest temples, attributable to the Maitrakas of Valabhi, are small structures distinguished by a simple plan and design showing a tall plain *jangha* (wall), surmounted by a pyramidal roof of stepped *kapota*-(cornice-)courses, decorated with a diminishing number of bold *chaitya*-windows. The temple of Gop, District Jamnagar, assignable to the sixth century, is the earliest surviving example with the shortest roof, comprising two such courses, while the temple at Bileswar, District Junagadh, with a tall roof of six tiers, each exhibiting *kutas* on the corners, is the most evolved example of this class, dating from the close of the seventh century. Nearly fifty kindred temples, with the roof comprising three to five similar tiers, were located along the coastal region of Gujarat, at the sites of Pindara, Navi-Dhrewad and Son-Kansari (pl. LXXXVIII A) in District Jamnagar, Harshadmata near Miani, Kin-derkheda, Visawada, Khimeswar and Bhanasara in District Junagadh and Kalsar in District " Bhaunagar. Their thickest concentration is round Porbandar, at the sites of Son-Kansari, Khimeswar and Bhanasara, of which the last two are of recent discovery.

The Varaha temple at Kadwar, near Prabhaj-Patan, assignable to the late seventh century, forms a link between the Maitraka temples and the neighbouring Sun temple at Sutrapada of the early eighth century, exhibiting a rudimentary northen *sikhara* of the *tri-ratha* form. The Sutrapada temple is followed by the Roda (District Sabar-Kantha) group of temples (pl. LXXXVIII B) of the late eighth century, comprising a sanctum with a stunted *tri-ratha* or *pancha-ratha sikhara*, *ardha-mandapa* and sometimes a *mandapa* with a pyramidal roof, not far removed morphologically from that of the Maitraka temples.

A further evolution of the pre-Solanki architectural style is traceable through the Sun temple at Bhimnath near Prabhas-Patan, Khimrana temple near Jamnagar, Siva temple of Manjal in Kutch and small shrines at Miani—all of the ninth century, followed by the cele-brated Ranakdevi temple at Wadhwan, District Surendranagar, and the Ganesa temple at Ghumli, District Jamnagar, assignable to the early tenth century. The last is a *sandhara* temple perpetuating the Maitraka tradition in its tall plain *jangha*, though it shares a full-fledged *pancha-ratha sikhara* with the temples at Miani and Wadhwan.

Among the tenth-century pre-Solanki temples of Gujarat, prominent are the Trinetres-vara and Muni-Baya temples near Than, District Surendranagar, Siva temple at Kerakot (pl. LXXXIX A) and the Sun Temple at Kotai in Kutch (pls. LXXXIX B and XC), the last resembling in significant architectural and decorative features the Ambika-mata temple at Jagat in Rajashtan. These are closely followed by the original temple of Somanatha at Prabhas-Patan and the Vishnu temple at Sandera, District Mehsana, which represent the insipient Solanki style.

Besides a survey of the temples of Ambaranatha near Kalyan, District Thana, Gon-deswar at Sinnar and Mahadeva temple at Jhodga, District Nasik, and the group of temples at Balsana, District West Khandesh, some Paramara temples in Malwa were also visited, such as the Malwai temple at Alirajpur, District Jhabua, and the Mahakala temple at Bagh, District Dhar. From a comparative study of the Paramara temples of central India (including Malwa) and the related structures in the outlying regions, including the northern Deccan, one concludes that this style, known as *bhumija* in the northern *silpa-texts*, has a wide distribution extending from Gujarat in the west to the Orissan border in the east and from Mahoba in the north to Kalyan in the south. But, except central India and Malwa,

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where the Paramara temples appear in abundance and exhibit the characteristic features of the style, the outlying regions—east, west and south—reveal a strong admixture of regional traits.

The early Chalukyan temple-groups at Aihole, Badami, Patadkal and Mahakutesvara were revisited in the company of the Superintendent, Temple-survey Project, Southern Region, and the chronology of these temples was re-examined. The results are given below. A temple of the northern style, locally known as the Tarakesvara, was also recorded at Aihole; this marks an experiment and combines many features of the southern architectural style.

2. SOUTHERN REGION.—Having surveyed the rock-cut cave-tmples of the Pallavas and the contemporary Pandyas and the other southern dynasties with Pallava affinities and also the monolithic and structural temples of the Pallavas ending with *circa* 950, and before taking of the Pallava derivatives in sequence, material of the preliminary survey of the rock-cut caves, structural and monolithic temples of the sixth to tenth centuries in the Chalukyan area and environs, was taken up for analysis and comparative study by the Southern Region of the Temple-survey Project, of the Survey, under Shri K. R. Srinivasan. Such monuments relate to the rock-cut cave-temples in Badami, Aihole, Ellora, Aurangabad, Elephanta, Bhokardhan (District Aurangabad) and Jogeswari. The data are being analysed and compiled with a view to the fixing of their relative dating and the evaluation of common characteristics. Certain broad facts on the structural phase in the Chalukyan area have emerged as a result of the study. Following Mangalesa's cave-temple of 578 at Badami, the early structural phase there and in adjoining Mahakutesvara would appear to fall in the first half of the seventh century. This was the time when Vatapi, the capital, and Mahakutesvara were embellished prior to the conquest of the Chalukyas and occupation of, Vatapi by Narasimhavaramn Pallava in about 642. On the re-emergence of the Chalukyan empire under Vikramaditya I in 654, with the alternate capital at Patadkal (Raktapuri) and the mer-cantile metropolis at Aihole, much of the structural activity seems to have started in these two places in the second half of the seventh century and continued till the first half of the eighth, when the Badami Chalukyas were replaced by the Rashtrakutas as the major power in Dec-can, who shifted their activity to Ellora and other places. On an examination of the Durga temple, Aihole, and by a study of its photographs taken in the last century before its con-servation, it is clear that it had originally an apsidal *sikhara* like the Ter and Chezarla temples but with a solid rubble-core and that the present incompatible northern-style superstructure of smaller base has been imposed upon it by the early conservators, thus making it an unsee-ming anachronism. The superstructure appears to have belonged to another temple of the northern style nearby. The architectural and other sculptural characters of this temple would also indicate a date later than what hasbeen supposed to be so far. The details relating to this and other temples of the southern style in these places are being worked out, so that the evolutionary and chronological sequence is finally made out.

The cave-temple at Bhokardhan (pls. XCI and XC1I A), in the north-east corner of the Deccan, is unlike any of its Chalukyan or Rashtrakuta compeers in the Deccan but resembles more in its plan the Pallava cave-temples in the Pallava country and the ones of the Pallava type in the south and also in the Vengi country, particularly in having a row of shrine-cells behind the pillared *mamlapa.* The striking *biruda Utpatipidugu,* perhaps meaning 'uprooting thunder-bolt', in archaic. Telugu-Kannada script, found in this cave-temple, is also to be found in the Akkanna-Madanna caye-lemple at Vijayawada, north of the Krishna, and the storeyed cave-temple at Undavalli, south of the Krishna, both on the Andhra coast, and again on a hill called Bhairavakonda near Mohidinpuram in Cumbum Taluk, Kurnool District. Such titles ending with the suffix *pidugu* are peculiar to the Pallavas and

their Telugu-Chola and Muttaraiyar subordinates, and not to the Chalukyas or Rashtrakutas. The palaeography of all these *birudas* also would indicate the seventh century as their date. The only Pallava who could have been moving all over this country was Narsimhavarman Mamalla, who conquered Vatapi and occupied the country for some years. The *biruda Utpatipidugu* was perhaps one of the hitherto-unknown titles of Pallava Narasimhavarman Mamalla, even as *Pagapidugu*, *Videlvidugu* and *Marippidugu*, were, for instance, the titles of Pallava Mahendravarman, Nandivarman and Dantivarman respectively. This, with other things, would incidentally indicate the dates of the cave-temples and help in fixing relative dates of the others.

Besides many common architectural features which could be enumerated as determining characters of the early Chalukya (pls. XCII B-XCIV) and Rashtrakuta temples, a striking feature is the introduction of the *linga* in the cave and structural temples, the *avudayar* or the *linga-pitha* alone of the cave-temples being often rock-cut with the *linga* forming a separate insertion. Comparable to the Somaskanda panels on the back wall of the sanctum of the Pallava cave, monolithic and structural temples, one would also notice the advent of the Mahesa-murti in a similar position in the Chalukyan area. This, taken along with the architectural characters and sculptural and iconographic features, are indicative in fixing dates, particularly in the absence of clear foundation-inscriptions.

VII. ARCHAEOLOGICAL ATLAS

All-round progress was maintained in the preparation, under Shri Ballabh Saran of the Archaeological Atlas Branch of the Survey, of about a dozen maps for the Archaeological Atlas, designed to provide factual information and comprehensive study of the wide range of archaeological subjects.

As a preliminary necessity to the compilation, classification and indexing of data, both site-wise and subject-wise, some technical terms for maps on prehistory were finalized and the location of sites was determined in the light of the changed boundaries brought about by the re-organization of the States.

Work is in progress on the following subjects, to cover twelve maps:geological formations of the Pleistocene and Recent Periods; Siwalik formations; sites where implements have been noticed in geological strata; glaciated tracts; and rock-shelters.

The special distribution maps will contain archaeological information in respect of: prehistoric caves and shelters; palaeolithic industries; microlithic industries; neolithic industries; ancient fortified towns; excavated sites and remains; terracotta and stucco figurines; early coins; dynastic coins up to the sixth century A.D. ; and megalithic burials.

VIII. PRESERVATION OF MONUMENTS

MONUMENTS OF NATIONAL IMPORTANCE

CENTRAL CIRCLE

Madhya Pradesh

1. FORT, ATER, DISTRICT BHIND.—The porous lime-concrete of the terrace of the monument was removed and the structure rendered watertight by with fresh concrete.

2. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—Debris lying to the north of Cave 2 was removed and the precincts cleared of all jungle-growth.

3. GROUP OF MONUMENTS, MANDU, DISTRICT DHAR.—The work of removing debris from Baj Bahadur's palace and making the exposed ends of walls watertight was continued (1959-60, p. 86). Approach-roads to individual monuments were reconditioned and an extensive clearance of vegetation undertaken.

4. GROUP OF MONUMENTS, FORT, GWALIOR.—The platform of Tansen's tomb was paved with stones and the missing *jalis* in the monument replaced by new ones. The debris lying on the approach-roads to the rock-cut Jaina colossus was removed.

5. CHAUSATH-YOGINI TEMPLE, BHERAGHAT, DISTRICT JABALPUR.—The debris accumulated inside the cells in front of the main entrance was removed and the roof-terrace was repaired. Loose and scattered sculptures were collected and numbered.

6. FORT, ASIRGARH, DISTRICT NIMAR EAST.—Brick kerbing was laid on either side of the approach-road and surface-drains provided.

7. AHUKHANA, BURHANPUR, DISTRICT NIMAR EAST.—The masonry steps of the tank attached to the *mahal* were restored. The approach-road was provided with brick kerbing and reconditioned by spreading *morum.*

8. BIBI-SAHIB'S MOSQUE, BURHANPUR, DISTRICT NIMAR EAST.—The work of re placing the veneer-stones of the *minar* was continued (1959-60, p. 87) and is still in pro gress.

9. TOMBS OF ADIL SHAH AND NADIR SHAH, BURHANPUR, DISTRICT NIMAR EAST.—The decayed lime-plaster of the terrace of the *naqarkhana* was removed and the surface replastered. The porous lime-concrete of the *naqarkhana* cells was removed and fresh concrete laid.

10. SIDDHESVARA TEMPLE, MANDHATA, DISTRICT NIMAR EAST.—The boundary-wall of the temple was restored and the pavement around the main shrine and steps re-laid.

11. CHAUBARA-DERA, UN, DISTRICT NIMAR EAST.—The slab-roofed terrace of the monument was cleared of all debris and the surface rendered watertight.

12. FORT, RAISEN.—The southern wall of the Moti tank was repaired in coursed rubble-masonry.

13. GROUP OF MONUMENTS, SANCHI, DISTRICT RAISEN.—The work of grouting at Stupa 1 was continued (1959-60, p. 87).

14. FORT, GARHPAHRA, DISTRICT SAGAR.—Debris around the Shish-Mahal and Munda-Mahal was removed and the dry-masonry walls were underpinned. Extensive jungle-clearance was also undertaken.

15. FORT, KHIMLASA, DISTRICT SAGAR.—The fallen wall of the Dhola tank was restored in lime-mortar and vegetation removed from the monuments.

16. FORT, RAHATGARH, DISTRICT SAGAR.—The roof of the Shish-mahal was provided with wooden beams. The damaged floor of the mosque in the fort was repaired and a turnstile gate fixed to prevent entry of animals.

17. UDAYESVARA TEMPLE, UDAIPUR, DISTRICT VIDISHA.—The tilted crowning-members of the *sikhara* were removed and re-set in position.

Maharashtra

18. FORT, BALAPUR, DISTRICT AKOLA.—Stone pitching was undertaken at the base of the bastion to save it from the scouring action of the river.

Rajasthan

19. KARNESVARA TEMPLE, KANESWA, DISTRICT KOTAH.—The missing stone slabs of the roof and the *chhajja* were replaced. Smoke-stains were removed from the surface of the wall.

EASTERN CIRCLE

Assam

20. CACHARI RUINS, KHASPUR, DISTRICT CACHAR.—-The undulating surface of the *simhadvara* was dressed up by a large-scale earth-filling. The dilapidated terrace around the plinth of the Ramachandi temple was entirely rebuilt on original lines and its top finished with plaster of beaten lime and *surki* to match the original tint and texture.

21. SIBDOL TEMPLE, JAYSAGAR, DISTRICT SIBSAGAR.—The gaping joints in the brickwork of the lower *sikharas* were filled and worn-out bricks replaced. The sub sidiary structure in the temple-compound was cleared of all rank vegetation and cracks in its walls and ceiling filled.

22. VISHNUDOL TEMPLE, JAYSAGAR, DISTRICT SIBSAGAR.—Patches of decayed plaster of the lower *sikharas* were renewed. The open joints in ashlar-masonry of the sanctum were grouted up to a height of about 3.5 metres with liquid cement and the surface plastered with lime-*surki*-mortar in conformity with the original surface.

23. SIBDOL TEMPLE, SIBSAGAR.—The special repairs to this temple were continued (1959-60, p. 89) and the missing and unserviceable stones of the masonry in a portion of the wall were, replaced. All the extant statuary from this portion, which had been

dislodged or broken, was removed and firmly re-set in position. The veneer ashlar-courses were properly bonded with the core by copper dowels and clamps, after strengthening the core with rubble-masonry in cement-mortar. The lower mouldings were renewed at places by the introduction of broad features of the decoration.

24. VISHNUDOL TEMPLE, SIBSAGAR.—The decayed lime-concrete terracing of the *mandapa* was renewed after filling the cavities in the roof. Cracks in the ceiling were filled with lime-*surki*-mortar and the surface finished in accordance with the original.

Manipur

25. TEMPLE OF VISHNU, BISHENPUR.—The damaged superstructure was made good by new brickwork.

Orissa

26. BUDDHIST REMAINS, RATNAGIRI, DISTRICT CUTTACK.—Apart from the restoration of a number of damaged miniature *stupas* (pl. XCV) lying around the main *stupa*, the following works were carried out to Monastery 1, in continuation of last year's work (1959-60, pp. 89-90).

The ashlar-masonry of both the flanks of the southern wall and a large portion of the eastern and western walls were restored up to the original ground-floor; the missing veneer of the south-eastern corner-wall was rebuilt in ashlar-masonry (pl. XCVI). The dislocated stones of both the flanks of the south wall of the rear porch were re-set in their proper position (pl. XCVII).

The damaged walls of the shrine were made good by the replacement (pl. XCVIII) of a few courses of the masonry, using the carved stones recovered from the debris. The restoration of the corbelled secret chambers, which was started last year, was completed.

The damaged and bulged-out brick wall behind the eastern flank of the northern verandah was reconstructed (pl. XCIX) with old bricks in conformity with the original character. The badly-shattered front walls of Cells 12 and 13, along with the partially-blocked door, were rebuilt with old material. The bulged-out facade of Cell 11 was made good (pl. C) by the re-setting of the brickwork.

The brick temple exposed last year was thoroughly conserved by a large-scale renewal of bricks, both plain and moulded, re-setting of the brickwork and re-laying of the stone-paved floor of the sanctum.

The work of the restoration of parts of arches along with the flanking walls of Cell 5 is in progress.

27. BUDDHIST REMAINS, UDAYAGIRI, DISTRICT CUTTACK.—The enclosure-wall around the pavement of the rock-cut step-well was made good by dismantling and rebuilding with the old stones.

28. GROUP OF TEMPLES, BHUBANESWAR, DISTRICT PURI.—Six large shrines within the enclosure of the Lingaraja temple were thoroughly conserved by way of re-setting the displaced masonry, introducing new blocks of stones in place of missing ones, grouting the cavities in the core and finishing the exterior with recess-pointing. In some cases, the broad mouldings of the shrines were reproduced.

29. SUN TEMPLE, KONARAK, DISTRICT PURI.—In continuation of the major repairs in progress (1959-60, p. 90), substantial work was carried out by way of drilling two hundred more holes in the platform around the temple and grouting them with liquid cement mixed with sand and ironite, reversing the slope to a width of 6 metres of the ground outside the compound-wall by the removal of heaps of sand and stones surrounding the enclosure-wall and stabilizing the sand-heaps beyond this area by means of stone pitching. Grouting was also started for strengthening the foundations and forty-eight holes on the western face were drilled and grouted after exposing the buried plinth down to the depth of water-level. In addition, the repairs to the eastern and southern gateways were completed by the replacement of plain and moulded blocks of the masonry.

30. CAVES, UDAYAGIRI, DISTRICT PURI—The cracks in the rock-surface, which allowed percolation of water inside Caves 10 and 14, were grouted with liquid cement-mortar.

Tripura

31. BHUVANESVARI TEMPLE, UDAIPUR.—This temple, in a bad state of preservation, was attended to for the first time by way of restoring the missing and worn-out brickwork at places, re-laying the roof-concrete, renewing the floor of the platform, levelling and dressing the compound including filling the exposed part of the north-east corner of the foundation.

West Bengal

32. NAVARATNA TEMPLE, BRAHMANDIBI, DISTRICT BIRBHUM.—The openings in the windows of the upper storey were provided with wire-netting and cracks and openings in the brickwork filled with coloured cement-mortar.

33. TEMPLE OF JAYADEVA, KENDULI, DISTRICT BIRBHUM.—The damaged terrace over the roof of the temple was re-laid with lime-concrete.

34. RADHA-DAMODAR TEMPLE, SURI, DISTRICT BIRBHUM.—A tree which had taken a deep root in the roof of the temple was eradicated and the resultant damages mended. The cracks in the open terrace were filled with coloured cement-mortar and debris removed from near the fencing.

35. BEGUNIA GROUP OF TEMPLES, BARAKAR, DISTRICT BURDWAN.—A brick compound-wall was constructed around the spacious premises of the monument.

36. TOMB OF SHER AFGHAN, QUTBU'D-DIN AND BAHRAM SAKKA, BURDWAN.—A dilapidated tomb in the eastern yard was repaired and a crack in the north-east pillar of the yard filled. The interior walls of Sher Afghan's tomb and gateway to Bahram Sakka's tomb were colourwashed. The wooden beams and rafters were given a protective coat of coal-tar and the enclosure-wall cleared of all vegetation and repaired at places.

37. MOSQUE AND MINAR, PANDUA, DISTRICT HOOGHLY.—The bulged-out and overhanging brick work of niches 2, 9 and 10 was taken out and rebuilt. The ornamental pillar and arch of niche 2 were rebuilt on original lines. The tops of walls over niches 9, 10, 11 and 12 were made watertight by courses of bricks laid in coloured cement-mortar.

38. TOMB AND MOSQUE OF ZAFAR KHAN GHAZI, TRIBENI, DISTRICT HOOGHLY.—The spongy terrace and plaster on the top and sides of the two interior tombs were picked up and new lime-concrete and plaster laid. The damaged brickwork of the plinth was also made good. A tomb lying in the open, outside the main structure containing the tomb of Zafar Khan Ghazi, was repaired by the renewal of the damaged brickwork and provision of a covering-coat of plaster.

39. GROUP OF MONUMENTS, GAUR, DISTRICT MALDA.—The Lotton mosque was attended to by way of reproducing the ornamental brickwork, removing decayed bricks, filling cracks and making watertight the tops of walls with a layer of lime-concrete. The overhanging wall of Baraduari mosque was underpinned and some loose ornamental bricks re-set in position. The missing brickwork from the soffit and of the dome of this mosque was also restored and the concrete over the dome re-laid. The blocked-up original gateway was made serviceable by the removal of accretions. The compound of Chicka-Masjid was dressed in order to provide proper slope for the drainage of water. The missing and salt-affected bricks from the portion of the outhouse of the Qadam-Rasul mosque were restored. The ornamental brickwork of the south-eastern pillar of the Gumti gate was reproduced and the top of the gate made watertight. The remaining portion of the collapsed portion of the Dakhil-Darwaza was reconstructed and lime-concrete was laid on the terrace. Repairs to the Baisgaji, which had partially collapsed due to heavy rains, are in progress.

40. GROUP OF MONUMENTS, PANDUA, DISTRICT MALDA.—A portion of the lime-concrete flooring of the Adina mosque was renewed. Removal of debris from the base ment of the walls and from the precincts of the gateway of this monument and the Qutb-Shahi mosque was also undertaken.

41. BHAVANISVARA TEMPLE, BARANAGAR, DISTRICT MURSHIDABAD.—The decayed moulding of the cornice and floral design in the facade of the temple were reproduced.

42. TOMB AND MOSQUE OF MURSHID QULI KHAN, KATRA, DISTRICT MURSHIDA BAD.—The southern dome of the mosque was restored (pl. CI), as per its old design. Three cells of the Katra were rebuilt by the restoration of brickwork of the arches, squinches and domes. The flooring of the gateway was re-laid with concrete. A strip of land was acquired around the monument in order to provide a proper setting to the monument and cleared of accumulated debris.

43. MOSQUE AND TOMB OF SHUJAU'D-DIN, ROSHNIBAG, DISTRICT MURSHIDABAD.—The damaged brickwork of the plinth of the mausoleum was repaired and provided with a covering-coat of plaster.

FRONTIER CIRCLE

Jammu and Kashmir

44. MUGHUL ARCADE, VERINAG, DISTRICT ANANTNAG.—This monument, skirting the spring reputed to be the source of river Jhelum, was in an absolutely dilapidated condition as a result of neglect over a long period. With the rise of the water-level of the spring, the promenade and the arches were partially cut off and the monument presented a distorted picture. While attempts are being made to lower the level of the spring so that the arches can be seen in their full height, the arches on the western side were conserved by way of repairs to the damaged brickwork (pl. CII).

45. TOMB OF ZAINU'L-ABIDIN'S MOTHER, BADSHAH, SRINAGAR.—Large-scale re pairs to the tomb consisted of the replacement of the decayed stones and torus moulding of the plinth, grouting and underpinning at places and laying of concrete over the domes. The work is in progress.

46. GROUP OF TEMPLES AT KIRAMCHI AND BABOUR, DISTRICT UDHAMPUR.—The monuments have been cleared of extensive jungle-growth and are now easily accessible.

MID-EASTERN CIRCLE

Bihar

47. STUPA, NANDANGARH, DISTRICT CHAMPARAN.—The *stupa* was underpinned and the precincts properly dressed by clearance of vegetation. The work of providing fencing, started last year (1959-60, p. 92), is nearing completion.

48. STUPA, VAISALI, DISTRICT MUZAFFARPUR.—The thatched roof of the shed put up for the protection of the newly-excavated *stupa* was renovated by the replacement of the decayed bamboo-frames, grass and tiles.

49. IBRAHIM BAYYU'S TOMB, BIHAR-SHARIF, DISTRICT PATNA.—The compound-wall was repaired by rebuilding portions in brick and rubble.

50. EXCAVATED REMAINS, KUMRAHAR, DISTRICT PATNA.—The site of the Mauryan palace was made accessible by the removal of accumulated water. The pathways and other excavated remains were kept in a good condition.

51. GROUP OF MONUMENTS, RAJGIR, DISTRICT PATNA.—The extensive remains of monuments at Rajgir were maintained in a satisfactory condition by way of making the tops of exposed walls watertight, provision of lime-concrete at places and filling of hollows in the masonrywork. A part of the wall of the New Fort was further traced and con served to a length of about 50 metres.

52. FORT AND GATEWAYS, ROHTAS, DISTRICT SHAHABAD.—The decayed floor-concrete of the Maid-servants' Quarters was re-laid with fresh concrete. The open joints of the ceiling were pointed. Paths in the Shish-Mahal were attended to and the monument cleared of jungle-growth.

53. HASAN SUR SHAH'S TOMB, SASARAM, DISTRICT SHAHABAD.—The damaged floor-concrete was re-laid with a fresh layer of concrete. The openings in the tomb were provided with wire-netting fixed in wooden frames to stop the ingress of bats.

54. SHER SHAH'S TOMB, SASARAM, DISTRICT SHAHABAD.—The decayed floor in side the tomb was re-laid with fresh concrete. The brick apron all round the tomb was provided with a protective stone-edging. Lawns were maintained along the causeway and the courtyard.

Uttar Pradesh

55. EXCAVATED REMAINS, KUSINAGARA, DISTRICT DEORIA.—The exposed ends of excavated structures were made watertight by dismantling and re-setting the two top layers. Culverts were provided at three places to facilitate drainage of water and the site maintained in a satisfactory condition.

56. GOMATI BRIDGE, JAUNPUR.—The decayed concrete of the floor and the roof of some of the shops was made good.

57. OLD FORT, JAUNPUR.—Some portions of the fort-wall were made water-tight to check permeation of water in the masonry. A lightning-conductor was fixed over the western gate of the fort. Pathways inside the fort were metalled with *kankar*

58. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI.—The decayed concrete apron around the Dhamekh Stupa was re-laid with fresh lime-concrete. Extensive underpinning was done to the core of Chaukhandi Stupa and steps leading to the tower over the *stupa* repaired.

59. DHARARA-MASJID, VARANASI.—In accordance with the decision of the Government of India, two-thirds of the height of the north-east *minar* was pulled down as a measure of safety.

NORTHERN CIRCLE

Madhya Pradesh

60. GROUP OF TEMPLES, KHAJURAHO, DISTRICT CHHATARPUR.—The wide and open joints in the masonry of Parsvanatha and Lakshmana temples were filled in with cement-concrete to prevent seepage of water. Similarly, the open joints in the Kandariya-Mahadeva temple were grouted in order to strengthen the structure and render the surface watertight.

61. BIR SINGH'S PALACE, DATIA.—The decayed lime-concrete in the roofs and floors of the fourth and fifth storeys of the palace was removed and re-laid with fresh concrete.

62. FORT AND TEMPLES, AJAIGARH, PANNA.—The collapsed portion of the wall near the fourth gateway of the fort was rebuilt and the broken stones of the stepped entrance replaced by available old stones. The open joints in the masonry of the Rang-Mahal were pointed with coloured cement-mortar.

63. PARVATI TEMPLE, NACHNA, DISTRICT PANNA.—The fine cracks in the stone-slab roofing were filled with cement-mortar.

64. VIRATESVARA TEMPLE, SOHAGPUR, DISTRICT SHAHDOL.—The rubble-masonry in the retaining-wall of the platform was underpinned by fixing new stones in the plinth in place of decayed stones. The wide and open joints in the plinth were filled with concreted mortar and the surface of the platform laid with lime-concrete.

Rajasthan

65. PALACES, DIG, DISTRICT BHARATPUR.—The deep and wide openings in the ledge along the plinth of the Krishna-Bhavan were filled to stop percolation of rain-water. The rubble compound-wall was underpinned and the thick plaster filleted at several places. The openings were provided with expanded-metal *jalis*

66. CHAURASI-KHAMBA TEMPLE, KAMA, DISTRICT BHARATPUR.—The collapsed portion of the south wall was reconstructed after changing the broken brackets, the face stones of the facade and the *chhajja*. The wide and open joints of the *chhajja* were pointed and the monument cleared of all rank vegetation.

Uttar Pradesh

67. FATEHPURI MOSQUE, AGRA.—The decayed and damaged stones in the extrados of the dome were replaced and the dislodged stones of the masonry re-set in position. The open joints of the masonry of the parapet and the dome were pointed and the broken lintel of the arch replaced by a new one.

68. FORT, AGRA.—The rubble-masonry inside the passage leading to the *baoli* was underpinned. The decayed and cracked stones in the staircase leading to the *baoli* and the roof of the Diwan-i-'Am, were replaced and cracks appearing in the roof of the Musumman-Burj, Shah Jahan's palace and Ratansingh's palace were filled. The dislodged stones of the floor of the tank in front of the Khas-Mahal were re-set.

69. IDGAH, AGRA.—The north-west bastion along with the portions of the enclosure-wall, which had collapsed during the heavy rains, was reconstructed. The collapsed arch in the facade towards north was rebuilt and patches of brickwork in the enclosure-wall underpinned.

70. 'ITIMADU'D-DAULA'S TOMB, AGRA.—Loose inlay-pieces in the facade of the tomb were re-set and the decayed stones of the entrance-gateway replaced.

71. SAHELI-BURJ, AGRA.—The sunken floor of the Saheli-Burj in the south-east corner of the Taj-Mahal was re-set in position and the open joints of the stone flooring in the verandah pointed. Decayed stones of the floor were replaced by new ones and openings in the marble screen closed by expanded-metal frames.

72. TAJ-MAHAL, AGRA.—In order to counteract the scouring of the foundation by the river during floods, rubble pitching encased with galvanized-iron wire-netting to a length of about 70 metres was done along the plinth of the north wall near the north-west tower (pl. CIII).

Extensive repairs undertaken to the *dalans* flanking the Fatehpuri gate on the north-east side included provision of new *chhajja*-stones and base-stones of pillars, replacing of damaged and missing brackets and reconditioning of the floor in the rooms with fresh concrete. The dislodged stones in the pavement were re-set and the closed arches inside the mausoleum were fitted with glass panes. Loose inlay-pieces in the north wall were re-set and a few water-outlets in marble fixed in place of the missing ones.

73. GROUP OF MONUMENTS, FATEHPUR-SIKRI, DISTRICT AGRA.—Fresh lime-concrete was laid in the floor of the Hawa-Mahal, winter-palace, stable and girls' school. The decayed flooring slabs of the Badshahi-Darwaza and Panch-Mahal and the *chhajjas* and parapet-stones of the kitchen near Mariam's house and Jodh-Bai's palace were replaced with new ones. As a preliminary measure the precariously overhanging portions of the domes of the mint were supported from below by masonry pillars. Extensive clearance of debris and jungle was undertaken.

74. AKBAR'S TOMB, SIKANDARA, DISTRICT AGRA.—The decayed and water-absorbant patches of lime-concrete on the terrace of the first storey were replaced by fresh lime-concrete. The rubble-masonry of the enclosure-wall was underpinned and open joints in the masonry of the wall were pointed.

75. GROUP OF MONUMENTS, KHUSROBAGH, ALLAHABAD.—Door-leaves imitating the Mughul pattern were fitted to the rooms in the eastern and western bastions in the third floor of the gateway. The decayed plaster of the southern gateway was made good and necessary underpinning done. Dislodged stones of the pavement and *dasa*-stones of the

tank and foot-path in the front of the tomb of Khusro's sisters and mother were re-set and pointed. Rank vegetation was eradicated from the enclosure-wall and crevices filled with lime-cement-mortar.

76. EXCAVATED REMAINS, BHITA, DISTRICT ALLAHABAD.—An old brick wall was extensively underpinned with mud-mortar to match the original features of the wall and sifted earth spread on the tops of walls. AH drains from the site were cleared of the silt for an easy drainage of water and the site dressed by the removal of all jungle-growth.

77. GROUP OF TEMPLES, BAUNATH, DISTRICT ALMORA.—In order to stop encroachment in the protected area the Rakesa-deva and Lakshmi-Narayana temples were- provided with compound-walls on the road-side.

78. DANDESVARA GROUP OF TEMPLES, JAGESWAR, DISTRICT ALMORA.—The dilapidated retaining-wall along with river Sarayu was dismantled and reconstructed with the heavy old stones in cement-mortar.

79. EXCAVATED REMAINS, AHICHCHHATRA, DISTRICT BAREILLY.—Collapsed patches of brickwork in the walls of AC-I, AC-II and AC-III were underpinned with existing old bricks. The top layer was laid in lime-cement-mortar and sifted earth spread thereon to make the top of walls watertight.

80. JARAI-KA-MATH, BARAWASAGAR, DISTRCT JHANSI.—The loose patches of *lakhauri* brickwork in the *chhattris* were supported. The joints in the masonry inside the temple were recess-pointed.

81. DILKUSHA PALACES, LUCKNOW.—The overhanging masonry of the wall above the door-opening was supported by a wooden lintel. For the easy drainage of rain-water which finds its way in the building in the absence of any roof, the depressions in the floor were filled with the earth and a proper slope ensured.

82. IMAMBARA OF 'ASAFU'D-DAULAH, LUCKNOW.—-The deep and wide joints in the eastern wall over the *dalans* between the first and the second gateway were pointed and the crumbling section of the wall underpinned. The broken edges of plaster were neatly filleted. The decayed ornamental plaster was removed and the portions replastered faith fully reproducing the original design. The loose masonry on the western side of the main building was underpinned at places and the decayed plaster replaced by a coat of fresh plaster. The damaged floor of the octagonal *burji* on the western side and the passage leading to the same was re-laid with fresh lime-concrete.

83. NADAN-MAHAL AND IBRAHIM CHISHTI'S TOMB, LUCKNOW.—The broken *'chhajja*-stones were replaced and the masonry of the dome underpinned.

84. RESIDENCY BUILDINGS, LUCKNOW.—Extensive pointing, underpinning and edging of the broken plaster and filling in of cracks were undertaken. The decayed wooden rafters of the landing of the staircase leading to the tower were replaced and covered with a coat of lime.

85. RUMI-DARWAZA, LUCKNOW.—The salt-affected *lakhauri* brickwork was washed to remove the salts and the portion plastered after underpinning the overhanging portion. Patches of porous lime-concrete were re-laid with fresh lime-concrete.

86. SA'ADAT 'ALI KHAN'S TOMB, LUCKNOW.—The porous portions of the dome and .launches were made watertight with fresh concrete. The inverted lotus-flower decoration under the brass pinnacle was faithfully reproduced. Some broken *chhajja*-stones were replaced.

87. MADAN-MOHAN TEMPLE, VRINDABAN, DISTRICT MATHURA.—The open joints in the *sikhara* and *mandapa* were filled with coloured cement-mortar and all rank vegetation re moved from the monument. The brickwork in the plinth of the temple was underpinned. A few missing *chhajja*-stones and brackets were replaced.

NORTH-WESTERN CIRCLE

Delhi

88. BEGAMPURI MOSQUE, DELHI.—The joints in the masonry of the ceilings and the intrados of the domes were grouted and pointed. The old and decayed plaster over the domes was dismantled and fresh plaster laid after grouting the holes and cavities in the masonry and laying concrete at places. The broken plaster was secured by edging and the parapet-wall repaired.

89. BIJAY-MANDAL, DELHI.—The damaged masonry of the walls was repaired by grouting and pointing and filling the gaps with rubble-masonry. The rubble pillars of the eastern wing and the southern gate of the monument, which had collapsed during the earthquake of August 1960, were rebuilt. The work is in progress.

90. HAUZ-KHAS, DELHI.—The reconstruction of the eastern boundary-wall from the main entrance to the north-eastern corner (1959-60, p. 97) was completed. The joints in the ceiling of the cells behind the western corridor overlooking the reservoir were pointed. The holes and cavities in the domes were grouted and pointed and fresh concrete laid in patches on the roof of the tomb of Firuz Shah Tughluq.

91. JAMI'-MASJID, DELHI.—In continuation of the work undertaken last year (1959-60, p. 97), the cracks and cavities in the white and black marble veneer of the northern and southern domes of the prayer-chamber, *burjis* and cupolas were grouted with liquid *kankar*-lime mixed with cement and the open joints recess-pointed with special mortar. The bulged-out marble slabs were re-set and the soffits of the domes cleaned by thorough washing. The work of replacement of the damaged stones of the squinches is in progress.

92. MOTH-KI-MASJID, DELHI.—The loose and displaced masonry of the entrance-gate way and walls of the courtyard of the monument was secured by pointing to arrest further decay. The holes and cracks in the plaster of the domes and arches were grouted and the open joints in the rubble masonry pointed. The dangerously-hanging inscribed marble stone on the outer face of the entrance-gate was supported. *Morum* was spread on the *kachcha* platform of the courtyard.

93. QUDSIA-BAGH GATEWAY, DELHI.—The open joints of the brickwork were pointed and the decayed and missing patches rebuilt.

94. QUTB-MINAR, DELHI.—The bulged facing-stones in the lower portion of the south-eastern side of the *minar* were taken down and re-set after grouting the cracks and cavities in the rubble core. An iron-cum-wooden railing was provided on the first-floor balcony of the *minar* for safety. The clearance of and repairs to the Garhgaj mound on the east of the Qutb (1959-60, p 98) were resumed and are in progress.

95. RED FORT, DELHI.—The openings leading to the ground floor from the rear side of the Diwan-i-'Am were closed with red sandstone slabs. The broken plaster patches of the Mumtaz-Mahal were renewed in plain and moulded work and the interior distem-pered including repainting the woodwork. The replacement of the missing and badly-decayed red sandstone floor-slabs of the Rang-Mahal (1959-60, p. 98) was completed and

the decayed concrete of the flooring of the underground cells re-laid with fresh lime-cement- concrete. Fresh cement-concrete was also laid along the basement staircase to prevent seepage of water into the walls and cells and brickwork of the foundation was strengthened. The renewal of *pietra dura* work in the Diwani-i-Khas was taken up and is still in progress. The mossy growth on the red sandstone facing of the eastern fortification-wall was removed by scrubbing and the missing portions of the iron railing around the archaeological area re-erected. *Morum* was spread on the pathways and their dislodged redsandstone edging re-set.

96. SULTAN-GHARI, DELHI.—The bulged and dislodged marble veneer-stones of the tomb were re-set and the roof re-laid with rubble-masonry in lime-cement mortar. The cracked and bulged masonry of the western enclosure-wall was dismantled and reconstructed. The bulged ornamental marble stones of the *mihrab* and the displaced marble lintels of the prayer-chamber were re-set and the joints pointed.

97. TUGHLAKABAD FORT, DELHI.—The reconstruction of the rubble-masonry of the core of the fortification-wall to the west and the bastion flanking the main entrance (1959-60, p. 98) was completed (pl. CIV). Patches of ashlar-facing were securely bonded with the reconstructed core of the masonry as in the original construction. The repairs to the fallen bastion to the east of the water gate were also completed and debris removed from the inner side of the fortification-wall of the palace-area. Similar repairs to other parts of the monument are in progress.

98. ZAFAR-MAHAL, DELHI.—The bulged-out blocks of red sandstone of the balcony were removed and re-set in fresh mortar.

99. 'ABDUR-RAHIM KHAN-I-KHANAN'S TOMB, NEW DELHI.—The open joints in the masonry of the plinth were grouted.

100. CHAUSATH-KHAMBA, NEW DELHI.—The decayed and fallen patches of the rubble-masonry of the enclosure-wall were reconstructed and the open joints pointed. The cells on the north-east of the ground terrace were renovated by repairing the vaulted ceiling and pointing the joints of the masonry of the walls.

101. CHHOTE-BATASHEWALA-GUMBAD, NEW DELHI.—The decayed and fallen patches of the masonry of the outer pillars and of the octagonal platform were rebuilt.

102. DARYA-KHAN'S TOMB, NEW DELHI.—The decayed concrete of the platform of the central grave and floors of the corner *chhatris* was partly renewed ; the work is in progress. As a result of clearance, a gateway leading to the tomb and some other structures which had been lying buried were brought to light.

103. HUMAYUN'S TOMB, NEW DELHI.—The missing and broken marbles of the veneer of the main dome and the sandstones of the *chhajjas* of the corner *chhatris* were replaced by new ones. The dome and the drum were rendered watertight by grouting the cracks and pointing the open joints of the marble sandstone veneer.

104. JANTAR-MANTAR, NEW DELHI.—The walls of the *yantras* were plastered in parts ; this work is still in progress. A new brick wall was constructed to separate the protected area from the modern Bhairon temple at the rear of the monuments.

105. KOTLA FIRUZ SHAH, NEW DELHI.—The open joints of the masonry of the pyramidal edifice keeping the Asokan pillar in position were pointed and the hollows filled with concreted mortar. The deadlime-concrete of the first and second floors of the pyramidal edifice was dismantled and fresh lime-cement-concrete laid. The fallen portions of the

northern fortification-wall and bastions were rebuilt in rubble-masonry; the joints were pointed with lime-cement-mortar and fresh lime-cement-concrete was laid on the floors of the bastions to the north of the main entrance.

106. LAL-BANGLA, NEW DELHI.—The broken and missing buff sandstone *chhajjas* were replaced by properly-moulded new ones, carved and ornamented and the missing *kanguras* of the stone parapet restored.

107. MIRZA MUZAFFAR HUSAIN'S TOMB, NEW DELHI.—The open joints in tne rubble-masonry were pointed and the cracks grouted. A layer of *morum* was spread on the path ways around the monument.

108. NAJAF KHAN'S TOMB, NEW DELHI.—The overhanging masonry of the entrance-gate was secured by grouting and underpinning. The ceiling of the inner cells were re-plastered after filling in the holes and cavities. Pathways around the monument and in the newly-laid garden were consolidated with brick ballast capped by a layer of *morum*. The work of providing red sandstone edging to the pathways was almost completed and the buried southern enclosure-wall exposed.

109. SAFDARJANG'S TOMB, NEW DELHI.—The open joints of the exterior and interior surfaces of the main dome were pointed in lime-cement-mortar and the dislodged marble facing-stones re-set. The wide open joints of the octagonal walls of the drum cleaned, grouted and pointed with stained cement-mortar. Portions of the walls and vaulted *dalans,* shorn of the original plaster, were replastered. Repairs to the broken plaster—plain and moulded—on the walls of the four corner *burjis* are in progress.

110. SIKANDAR LODI'S TOMB, NEW DELHI.—The fissures caused by the earthquake in August 1960 between the parapet and the roof on the northern side of the monument were grouted and filled with lime-cement-concrete.

111. SUNDARWALA-MAHAL, NEW DELHI.—The fallen rubble-masonry of the pillars of the *dalans* were restored and the holes, cracks and open joints in the rubble-masonry filled, grouted and pointed.

112. UGGARSEN'S BAOLI. NEW DELHI.—The fallen rubble-masonry of the pillars sup porting the arches was rebuilt.

113. UNIDENTIFIED TOMB NEAR HUMAYUN'S TOMB, NEW DELHI.—The walls, domes and roof of the tomb were made watertight by pointing the joints with lime-cement-mortar after uprooting the vegetation. The terraced platform of the monument, which had been lying buried, was exposed.

Himachal Pradesh

114. LAKSHMI-NARAYAN TEMPLE, CHAMBA.—The work of providing ashlar-masonry in the portions of the *sikhara* damaged by fire was continued (1959-60, p. 99).

Panjab

115. FORT, BHATINDA.—The vegetation-growth over the high walls of the fort was removed and a tree-killer injected into the roots of trees to arrest further growth.

116. BARSI GATE, HANSI, DISTRICT HISSAR.—The open joints of the masonry of the walls, gate and the bastions were pointed ; the decayed brickwork of the parapet of the

south-eastern bastion and of the plinth reconstructed and the parapets rendered watertight. The open joints in the northern and southern flanks of the gate were filled and the wheel-guard pillars constructed in cement-concrete for the protection of the masonry from vehicular traffic.

117. FIRUZ SHAH'S PALACE AND TAH-KHANAS, HISSAR.—The fallen portions of the southern and western stone walls were rebuilt and made watertight by pointing the joints in lime-cement-mortar.

118. GUJRI-MAHAL, HISSAR.—The outer rubble-wall was raised and the top surface made watertight by lime-cement-concrete. The joints were pointed and the area was dressed in terraces.

119. JAHAZ-KOTHI, HISSAR.—The area was dressed in terraces and the open joints in the rubble-masonry of the cells pointed. The decayed and fallen rubble of the walls was reconstructed.

120. TOMBS, NAKODAR, DISTRICT JULLUNDUR.—Fresh lime-cement-concrete was laid on the roof of the tombs and the wire-fencing tightened after repairing the broken angle-iron pieces.

121. FORT, KANGRA.—The work of exposing the ancient stepped pavements between the Ranjit Singh gate and the Jahangir gate was continued (1959-60, p. 100), and an ancient arched gate was brought to light.

Rajasthan

122. BADSHAHI-MAHAL, PUSHKAR, DISTRICT AJMER.—Dry-stone pitching undertaken last year (1959-60, p. 100) was extended on the eastern and southern sides in order to improve the setting of the monument.

123. GARH, DISTRICT ALWAR.—The clearance of sites of ruined temples called the Naugaza and Hanuman-ki-Deoli was resumed (1959-60, p. 100), revealing further structures and sculptures in the area.

124. BHATNER FORT, HANUMANGARH, DISTRICT GANGANAGAR.—Repairs to the damaged brickwork of the walls and bastions were continued (1959-60, p. 100).

125. BAOLI, ABANERI, DISTRICT JAIPUR.—The joints in the masonry of the eastern stepped entrance to the monument were pointed with lime-cement-mortar. The dead and decayed concrete of the roof of the main structure was dismantled and fresh concrete laid. The decayed plaster of the Bajrang temple and of the side-rooms was dismantled and replastered in lime-cement-mortar.

126. KALYANRAIJI'S TEMPLE, TODA RAI SINGH, DISTRICT TONK.—The damaged stone wall, earlier built with mud-mortar on the southern boundary, was dismantled and re built in lime-cement-mortar and plastered. The southern side of the temple area was dressed.

127. PIPAJI'S TEMPLE, TODA RAI SINGH, DISTRICT TONK.—The decayed carved masonry on the eastern side of the temple was dismantled and reconstructed after the removal of the trees which had dislodged the veneer-and core-stones. Clearance-operations within the, precincts of the monument revealed a *baoli* adjoining the temple.

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Uttar Pradesh

128 ROCK-EDICT OF ASOKA, KALSI, DISTRICT DEHRA DUN.-A wall was provided in front of the monument to demarcate the protected area. The open joints in the rubble of the shed above the edict were grouted and the surface plastered.

SOUTH-EASTERN CIRCLE

Andhra Pradesh

129 HILL FORT GOOTY, DISTRICT ANANTAPUR.—The gaping joints in the masonry of the fort-walls were recess-pointed with combination-mortar. All rank vegetation-growth was removed from the gateways and the flanking fort-walls. As a result of clearance of debris four imposing halls of the Muslim period were retrieved. The pillared hall bv the side of the jail on the top of the hill was repaired by way of re-laying the concrete flooring. The joints in the slabs of the gabled roof of the jail were grouted and pointed. The leaky vaulted terraced roof of the barracks between the first and the second gateway were made watertight after the removal of the dead and spongy mortar and laying of two courses of flat tiles in combination-mortar and plastering the same in conformity with the original character of the terrace.

130 LOWER FORT CHANDRAGIRI, DISTRICT CHITTOOR.—A few courses of masonry of the fallen walls of the barbican-entrances and flanking fort-walls were rebuilt with available old stones. The loose joints in the masonry over the top of the gateway were grouted and pointed with combination-mortar to prevent seepage of rain-water. The missing *chhaiia* and corbel-stones on the northern face of the Raja-Mahal were partly replaced by new ones and the top plastered with coloured lime-mortar in conformity with the old one.

131 UPPER FORT, GURRAMKONDA, DISTRICT CHITTOOR.—The fallen portions of the walk of the barracks, magazines and pillared *mandapas* on the top of the hill were rebuilt with available old stones in combination-mortar. The leaky roofs of these monuments were made watertight by laying concrete to the required slope. The broken ends of walls were made watertight by the reconstruction of the top two or three courses and the open joints in the core-masonry of the walls were recess-pointed with combination-mortar.

Portions of the fallen fort-walls in the lower reaches were rebuilt with the available old stones. The dislodged stones of the steps leading to the top of the hill were re-set and the missing stones replaced. .

The damaged and dangerously-overhanging roof-slabs of the main shrine and *mukha-mandapa* of the Narasimhasvami temple situated on the slope of the hill were removed along with the accretions. Some of the broken slabs of the *mandapa* found useful for repairs to the sanctum were used and the roof made watertight by fresh concrete laid after the removal of the decayed concrete. Similar repairs to the *mandapa* are in progress. The loose and wide joints in the side-walls of the main shrine and the *ardha-mandapa* were grouted and pointed with coloured lime-cement-motor.

132 VENKATESVARA TEMPLE, MANGAPURAM, DISTRICT CHITTOOR.—The massive *gopuram* of the late Vijayanagara period, rising to a great height and consisting of five tiers over the masonry structure of the ground floor, was taken up for extensive repairs. The wooden lintels and door-frames from the openings provided in each of the tiers were found missing and portions of brick structure were damaged; this had undermined the structural stability of the *gopuram*. In order to strengthen the monument, all the missing wooden

scantlings and door-frames of the same size as of the old ones were provided after the re-constructions of the fallen portions of brickwork in combination-mortar. The brickwork was also underpinned at places.

133. NARASIMHA TEMPLE, PEDDAMUDIAM, DISTRICT CUDDAPAH.—The sunk floor-slabs of the *mukha-mandapa* were removed and re-set. The partly fallen and bulged-out masonry of the main temple was reconstructed with old stones in combination-mortar. The dead concrete 'over the *mukha-mandapa* was removed and fresh concrete laid to make the roof watertight. The cracks and open joints in the brickwork of the *sikhara* were pointed.

134. GROUP OF TEMPLES, PUSHPAGIRI, DISTRICT CUDDAPAH.—Expanded-metal shutters in angle-iron frames were provided to the entrance of the main shrine to prevent the entry of bats inside the monument. The fallen and bulged-out portions of the compound-wall were reconstructed with available stones in combination-mortar. A drain was constructed for the disposal of rain-water.

135. FORT, GOLCONDA, DISTRICT HYDERABAD.—The debris lying inside the *naqar-khana*, Bhagamati palace and Shahi-Mahal was cleared to an average depth of 1½ metres and the old concreted floors exposed. The loose and open joints in the masonry of these monuments and Rani-Mahal were grouted and pointed. The leaky roof over the eastern portion of the Rani-Mahal was made watertight by a layer of fresh concrete.

136. ASOKAN ROCK-EDICTS, JONNAGIRI, DISTRICT KURNOOL.—In order to protect the inscriptions a barricade of iron bars fixed to angle iron and T-frames with a door-shutter was provided at the entrance.

137. KONDAREDDI-BURZ, KURNOOL.—The broken and missing merlons over the top of this imposing Burz, situated in the heart of the city, were reconstructed and the top plastered with combination-mortar. The damaged staircase leading to a top was repaired by the replacement of the missing slabs and re-setting of the dislodged ones in position. The open joints of the exterior face were pointed and the plaster of the interior repaired at places.

138. UMAMAHESVARASVAMI TEMPLE, YAGANTI, DISTRICT KURNOOL.—The basement and the paved pathway of the central pavilion in the tank in front of the temple was exposed by the removal of earth all round to a depth of about 5 metres. All rank vegetation was removed from the side-walls of the tank and the loose and open joints grouted and pointed. The cracks in the roof of the *dalans* were grouted and filled with concrete and combination-mortar and the roof made watertight.

139. GROUP OF TEMPLES, ALAMPUR, DISTRICT MAHBUBNAGAR.—In order to prevent the nuisance of bats, all the door- and window-openings of the temples were provided with expanded-metal screens in angle-iron frames. Extensive repairs were undertaken to the Taraka-Brahma temple by way of re-setting, according to the original alignment, the loose and dislodged stones of the front porch of the temple (pl. CV). The missing stone slabs of the *sukanasi* over the *ardha-mandapa* were replaced in conformity with the old character of the monument. All wide joints and cracks in the walls were grouted and pointed.

140. BUDDHIST REMAINS, SALIHUNDAM, DISTRICT SRIKAKULAM.—The major repairs in progress of this monument (1959-60, p. 103) were completed (pl. CVI) by the construction of a fairly wide approach-path from the main road and along the southern slope of the hill containing the Buddhist remains. This pathway was further extended to the sculpture-shed now under construction. A car-park was provided near the monument. A small garden was laid around the sculpture-shed to improve the appearance of the area.

141. BUDDHIST REMAINS, RAMATIRTHAM, DISTRICT VISAKHAPATNAM.—In order to provide an easy access to the monument a gravelled pathway was laid to connect the main road and the foot of the hill.

142. JANGAMESVARA TEMPLE, WARANGAL FORT, WARANGAL.—The fallen portions of the brick *sikhara* were rebuilt in conformity with the original character and the roof over the pillared *mandapa* made watertight (pl. CVII) by fresh concrete laid after the re-setting of the displaced stones. The missing and dislodged *kakshasana*-slabs along the periphery of the *maha-mandapa* were repaired and re-set, as also the stone flooring-slabs.

Madhya Pradesh

143. LAKSHMANA TEMPLE, SIRPUR, DISTRICT RAIPUR.—In the first quarter of the century, when the missing part of the *sikhara* of the temple was restored by the Public Works Department, a faulty shape was given to the upper part of the *sikhara* in the form of a frustum of a pyramid surmounted by a circular necking resembling an *amalaka*. This misleading renovation was rectified (pl. CVIII) by the chipping off of the restored portion of the brick work along the edge, thereby effacing the artificial contour, and giving a rugged appearance of the core as it existed before the restoration had been undertaken. The open joints in the exterior brickwork of the *sikhara* were also grouted and pointed with combination-mortar to prevent seepage of rain-water.

144. RAMA TEMPLE, SIRPUR, DISTRICT RAIPUR.—The heap of debris lying to the north of the temple was cleared and the basement, platform and walls of another complex of a brick temple of minor architectural importance exposed to view.

Maharashtra

145. OLD TEMPLE, ARMORI, DISTRICT CHANDA.—This temple-complex, situated on a tank-bund, had developed vertical cracks due to seepage of water into the foundations of the northern shrine. The north-east corner was also slightly out of plumb. To arrest further displacement of the structure a stone revetment over gravel-backing was provided along the monument and the top grouted and pointed with combination-mortar. The work is in progress.

146. ENCLOSURES AND BUILDINGS OF GOND RAJAS' TOMBS, CHANDA.—The two bastions along the southern enclosure-wall around the tombs, which had collapsed as a result of the flood of the Jharpat river, were rebuilt (pl. CIX) to a height above the maximum flood-level with stones available from the debris.

147. FORT-WALLS, CHANDA.—The fallen portions of the fort-wall abutting the Ramla tank were rebuilt with old stones in combination-mortar in conformity with the original character. The fallen portion of the Vithoba-Khirki was also rebuilt in part to prevent its further collapse.

148. GROUP OF TEMPLES, MARKANDA, DISTRICT CHANDA.—The loose and open joints of the Markandesvara temple were recess-pointed. The spongy concrete over the roof of the *mandapa* was removed and fresh concrete laid in combination-mortar to make the roof watertight.

149. MAHADEVA TEMPLE, RAJGARH, DISTRICT CHANDA.—This temple, which gets submerged to a depth of about 1 metre when the adjoining tank gets filled to its maximum

storing-capacity, was provided with a flag-stone pavement to a width of 3 metres all round over a bed of concrete laid in combination-mortar to prevent seepage of water into the foundations of the structure.

SOUTHERN CIRCLE

Kerala

150. FORT ST. ANGELO, CANNANORE.—Two partially-buried old guns in the fort-area were set up on pedestals. All vegetation was removed from the rampart-walls and steps were taken to give proper slopes for the drainage of rain-water.

151. BEKAL FORT, PALLIKERE, DISTRICT CANNANORE.—Rank vegetation in the masonry of the fort-wall was removed from the joints and the joints pointed to stop the re-growth of vegetation.

152. FORT, TELLICHERRY, DISTRICT CANNANORE.—Vegetation-growth was removed from the laterite and the joints recess-pointed with combination-mortar to stop growth of vegetation.

153. MATTANCHERRY PALACE, COCHIN, DISTRICT ERNAKULAM.—The entire wooden attic-ceiling was treated with wood-preservative. The damaged wooden flooring of one wing was removed and reconstructed and to prevent dampness, which had affected the mural-paintings on the walls of the palace, a course of granite slabs was introduced in half the width of the walls to serve as a damp-proof course. Grilled windows were provided for proper ventilation. The proposed garden-site was enclosed by a fence.

154. ST. FRANCIS CHURCH, COCHIN, DISTRICT ERNAKULAM.—The doors and windows were repainted and the damaged lightning-conductor refixed.

155. FORT, PALGHAT.—The damaged platform was rebuilt and the boundary of the monument demarcated by stone pillars.

156. SIVA TEMPLE, CHEMNANTHATTA, DISTRICT TRICHUR.—The woodwork in the temple was treated with preservatives to safeguard it against white ants.

Madras

157. IRAVATANESVARA TEMPLE, KANCHIPURAM, DISTRICT CHINGLEPUT.—The fallen portion of the brick compound-wall was reconstructed.

158. KAILASANATHA TEMPLE, KANCHIPURAM, DISTRICT CHINGLEPUT.—A dry-stone revetment was constructed on the northern and western sides of the monument and gravel spread in the open court around the temple.

159. GROUP OF MONUMENTS, MAHABALIPURAM, DISTRICT CHINGLEPUT.—The embankments of the approach leading to the Mahishasura-mardini cave was strengthened against erosion by a dry packing of undressed stones. The worn-out iron railing at the top of the Siva temple was replaced and a new door-shutter fixed at the opening to the terrace. Cracks appearing in other structures were grouted and recess-pointed with tinted mortar. Cement-pointing done in the past to fill the cracks was scraped off and the

cracks treated with combination-mortar to give the required rock-texture. The work is in progress. The approach was gravelled. A few stone benches were provided near the Shore temple for the convenience of visitors.

160. TIGER-HEADED ROCK-CUT CAVES, SALUVANKUPPAM, DISTRICT CHINGLEPUT.—A rough stone revetment with dry packing was provided along the embankment on the approach.

161. MONUMENTS, FORT ST. GEORGE, MADRAS.—The worn-out and the decayed beams and window-frames of the ground floor of Clive's building were replaced. New sun-shades were provided arid the main stair-case repaired. All woodwork was repainted and water-supply arrangement completed.

Repairs undertaken in Block XXXVI, housing the Museum, consisted of repainting of the woodwork and colourwashing the walls. The garden around the Museum was improved and an ornamental fencing provided to prevent trespass.

162. OLD TOWN-WALL, TONDIARPET, MADRAS.—The salt-affected portion of the wall was scraped, washed clean and replastered.

163. PANCHA-PANDAVA BEDS, KILAYUR AND KILAVALAVUR, DISTRICT MADURAI.—Rock-cut steps were provided for easy approach to the caves and the precincts were cleared of all jungle-growth. The revetment was strengthened and guard-stones fixed.

164. ROCK-CUT CAVE, SIYAMANGALAM, DISTRICT NORTH ARCOT.—The displaced stone flooring was re-set in position.

165. FORT, VELLORE, DISTRICT NORTH ARCOT.—The dilapidated ramp at the north-eastern corner of the fort was repaired and the room in the bastion provided with doors and shutters.

166. JALAKANTESVARA TEMPLE, VELLORE, DISTRICT NORTH ARCOT.—Portable teakwood bridges were provided in order to span the gap in the northern *dalan* and to connect the *mandapa* at the south-eastern corner. The deteriorated plaster was removed from the compound-wall at places and the surface replastered with combination-mortar.

167. FORT AND OTHER BUILDINGS, ATTUR, DISTRICT SALEM.—The fort-wall flanking the entrance was strengthened by the construction of a dry-stone revetment.

168. FORT AND TEMPLES ON THE HILL, CHINNAKAVANDANUR, DISTRICT SALEM.—The flooring between the *gopuram* and *mukha-mandapa* was re-set and door-leaves imitating the old pattern were provided.

169. RANGANATHASVAMI TEMPLE, NAMAKKAL, DISTRICT SALEM.—A broken stone lintel was replaced by a new one and the terrace made watertight.

170. HILL-FORT, RAYAKOTTAI, DISTRICT SALEM.—The exposed top surfaces of the brick walls of the structure on the hill-top were made watertight.

171. GROUP OF MONUMENTS, GINGEE, DISTRICT SOUTH ARCOT.—The inscription at the basement or the Venkataramana temple was exposed and a drain constructed to facilitate the drainage of water. The pathways were reconditioned and gravelled.

172. SIVA TEMPLE, AMMANKURICHI, DISTRICT TIRUCHCHIRAPPALLI.—The old leaky terrace was dismantled and made watertight with two courses of flat tiles with the necessary plastering on the top.

173. ROCK-CUT SIVA TEMPLE, KUNNANDARKOIL, DISTRICT TIRUCHCHIRAPPALLI.—The water-absorbent terrace of the *vahana-mandapa* was rendered watertight.

174. RAJENDRACHOLISVARA TEMPLE, PONNAMARAVATHY, DISTRICT TIRUCHCHIRAPPALLI.—Stone flooring was provided in front of the Murugan shrine. The main *vimana* was plastered and the old doors painted.

175. ROCK-CUT JAINA TEMPLE, SITTANNAVASAL, DISTRICT TIRUCHCHIRAPPALLI.—The protruding rock-surface of the approach was chiselled and loose boulders removed in order to provide an easy approach to the monument.

176. GROUP OF MONUMENTS, TIRUMAYAM, DISTRICT TIRUCHCHIRAPPALLI.—The walls of the palace were plastered at places. The leaky terrace over the rock-cut cave was rendered watertight.

177. ERUMBESVARA TEMPLE, TIRUVERUMBUR, DISTRICT TIRUCHCHIRAPPALLI.—The leaky terrace was rendered watertight by grouting.

178. SIVA TEMPLE, VARPET, DISTRICT TIRUCHCHIRAPPALLI.—A stone apron with proper slopes was provided around the temple and the pathways gravelled.

179. BHAKTAVATSALA TEMPLE, SERMADEVI, DISTRICT TIRUNELVELI.—The leaky roof of the main temple was made watertight by a fresh layer of concrete consisting of brick jelly in lime.

Mysore

180. FORT AND GATEWAYS, BANGALORE.—The decayed plaster on the walls of the gateways was removed and the affected portion replastered with fresh lime-mortar. The damaged cornice was repaired and the borken expanded-metal doors of the cells were re placed by doors provided with iron bars.

181. TIPU SULTAN'S PALACE, BANGALORE.—The doors and windows were repainted and portions of the walls where the plaster had decayed were repaired with fresh plaster. The garden attached to the palace was maintained in a good condition.

182. ANANTASAYANA TEMPLE, ANANTASAYANAGUDI, DISTRICT BELLARY.—The cracks and fissures in the dome were thoroughly grouted and the surface treated and finished with combination-mortar suitably stained to match the original. The pitted surface of the floor was replastered in lime-concrete.

183. KALLESVARASVAMI TEMPLE, BAGALI, DISTRICT BELLARY.—The fallen compound-wall was rebuilt and the accumulated debris inside the premises cleared.

184. TIPU SULTAN'S UPPER FORT AND CITADEL, BELLARY.—The fallen parapet-wall was rebuilt and the open joints of the stone were pointed. Extensive jungle-clearance was also undertaken.

185. GROUP OF MONUMENTS, HAMPI, DISTRICT BELLARY.—The uneven ground in the Zenana enclosure was levelled and a proper slope provided to drain off rain-water. All pathv/ays leading to the monuments were attended to by way of the removal of loose boulders and were gravelled. An extensive clearance of vegetation was also undertaken.

186. MALLIKARJUNA TEMPLE, KURUVATTI, DISTRICT BELLARY.—The fallen parapet-wall over the terrace of the main temple was rebuilt in keeping with its original character.

187. MALYAVANTHAM-RAGHUNATHASVAMI TEMPLE, VENKATAPURAM, DISTRICT BELLARY.—The *mandapa* was rendered watertight and the dislodged masonry of the steps set right.

188. VIDYA-SANKARA TEMPLE, SRINGERI, DISTRICT CHIKMAGALUR.—This temple, which had suffered damage in the year 1959 as a result of heavy floods to the river Tunga on the bank of which it stands, was taken up for repairs. A portion of the dry-stone retaining-wall, which had suffered damage to a length of about 20 metres, was rebuilt with a proper foundation in random-rubble masonry in cement-mortar (pl. CX).

189. HARIHARESVARA TEMPLE, HARIHAR, DISTRICT CHITALDRUG.—The leaky terrace was made waterproof. Thick incrustation of colourwash and soot was carefully removed from the pillars and the sculptures.

190. ASOKAN INSCRIPTIONS, SIDDAPURA, DISTRICT CHITALDRUG.—Gravelled approach-roads were provided to the Akkatangi temple and the Asokan inscriptions and the temple-site tidied up by a neat stacking of the loose and scattered sculptures.

191. KESAVA TEMPLE BELUR, DISTRICT HASSAN.—The roofs of the main *navaranga* and granary were rendered watertight.

192. LAKSHMI-DEVI TEMPLE, DODDAGADDAVALLI, DISTRICT HASSAN.—The cracks and fissures in the terrace over the *mandapa* were grouted with combination-mortar to make it watertight. The *jagati*-stones in the front portico were re-set.

193. GROUP OF MONUMENTS, HALEBID, DISTRICT HASSAN.—The fallen-portions of the compound-wall and the coping in the Jaina-Basti were reconstructed with old stones available at the site. The decayed flooring was consolidated.

194. GROUP OF MONUMENTS, SRAVANABELGOLA, DISTRICT HASSAN.—The undulating and sunk stone flooring of the *prakara* was re-set (pl. CXI) in cement-mortar over a bed of well-rammed sand using old stones as far as possible. The damaged cornice over the parapet was repaired and the woodwork of the *dalans* painted.

195. BHOGA-NANDISVARA TEMPLE, NANDI HILLS, DISTRICT KOLAR.—The undulating stone flooring in the *mandapa* and the *dalans* all round, as also around the Kalyani tank, was partly re-laid in cement-mortar over a bed of sand, following the existing pattern of the flooring. The work is in progress. The entire terrace of the corridor all round was made watertight by the removal of decayed concrete and laying of fresh brick-jelly concrete.

196. LAKSHMI-NARAYANA TEMPLE, HOSAHOLALU, DISTRICT MANDYA.—The cracks in the *vimana* were grouted to arrest leakage. The flooring was re-set at places.

197. PANCHAKUTA-BASTI, KAMBADAHALLI, DISTRICT MANDYA.—The dislodged masonry of the walls of the *mandapa* was re-set. The cracked beam previously supported by a masonry prop was replaced by a new one and the roof-terrace rendered watertight.

198. COLONEL BAILEY'S DUNGEON, SERINGAPATAM, DISTRICT MANDYA.—The terrace-concrete was raked out and fresh concrete laid to make the structure watertight (pl. CXII). The decayed plaster of the arches was removed and the portion replastered. The parapet-walls were underpinned.

199. SULTAN'S BATTERY, BOLURU, MANGALORE.—The worn-out flooring of one of the cellars was laid with a layer of concrete and the approach-paths gravelled.

200. ARKESVARA TEMPLE, HALA-ALUR, DISTRICT MYSORE.—The out-of-plumb *nandi-mandapa* was re-set, a cracked beam replaced and the terrace made watertight. The cracks in the wall were grouted after the removal of the roots of trees.

201. DEVAGANGA PONDS, BASAVANABYNE-NAGAR, DISTRICT SHIMOGA.—The damaged retaining-wall was reconstructed in random-rubble masonry and the site cleared of the accumulated debris.

SOUTH-WESTERN CIRCLE

Maharashtra

202. HEMADPANTHI TEMPLE, BAMINI, DISTRICT AHMADNAGAR.—Loose debris consisting of earth and boulders was removed from the top of the temple and the joints in the roof-slabs filled with cement-mortar.

203. DHOKESHWAR CAVES, DHOKE, DISTRICT AHMADNAGAR.—The construction of a retaining-wall, commenced last year (1959-60, p. 108) to stop the erosion of the approach-path, was completed.

204. MALLIKARJUNA TEMPLE, GHOTAN, DISTRICT AHMADNAGAR.—The roof of the temple was made watertight by a coat of cement-plaster on the top. All modern accretions were removed from the temple-precincts.

205. SALABAT-KHAN'S TOMB, MEHEKARI, DISTRICT AHMADNAGAR.—The pathway leading to monument was repaired by the construction of drains and retaining-walls.

206. SIVA TEMPLE, PARNER, DISTRICT AHMADNAGAR.—All open joints in the masonry of the temple were recess-pointed and rank vegetation removed.

207. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—Debris was removed from the top of Caves 1 and 2 to find out the source of the leakage. A stone block which had got detached from the inner side of the architrave of the front verandah of Cave 16 was fixed in position with necessary pins and clamps. Two ashlar-pillars supporting the verandah of Cave 17 were replaced in reinforced cement-concrete in imitation of the rock-cut pillars. A rock-cut drain was excavated over the facade of Caves 12 and 15, and a drip-course was provided below the mass of rock, projecting over Caves 11, 12, 13, 15, 17, and 18.

208. BIBI-KA-MAQBARA, AURANGABAD.—The plastering of the south-east *minar*, commenced last year (1959-60, p. 108), was completed and the original ornamental designs reproduced with specially-prepared mortar. Similar work was taken up in respect of north-east *minar*, half the height of which was Treated. The water-cisterns were made watertight by the dismantling of loose concrete and laying of a layer of fresh concrete. Black encrustation was removed from the walls of the monuments.

209. ROCK-CUT CAVES, AURANGABAD.—The ashlar-work in Caves 1 and 2 was dismantled and redone in reinforced cement-concrete to match the texture and colour of the rock. All cracks in the walls and ceilings of Cave 8 were filled and the surface chiselled to match the adjacent rock. A retaining-wall was provided to check the erosion near the edge of the path in front of Caves 2 and 3. The removal of accumulated earth near Cave 6 resulted in the discovery of a sculptured cave (pl. CXIII and CX1V A).

210. FORT, DAULATABAD, DISTRICT AURANGABAD.—Clearance of debris from the rock-cut cave near the moat brought to light an ornamental railing and a rock-cut staircase

leading to the moat. Remains of ashlar-masonry, probably of a pillared vestibule, were also exposed in front of this cave. The work is in progress.

211. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—In accordance with the phased programme of conservation, further repairs to Caves 10 and onwards were taken up after the completion of the repairs to the approach-path in front of Caves 1 to 9 (1958-59, p. 108). The undulating floor of the courtyard of Cave 10, connected to an underground drain, was repaired by the chiselling of the decomposed portions of rock and filling of cavities for easy drainage of water. The screen-wall on the north was strengthened by underpining and grouting, while all cavities in the southern screen-wall were filled. The floor of the courtyard of Caves 11 and 12 was dressed and a drain provided for the easy drainage of water. As a result of clearance in front of Cave 12, the rock-floor of a spacious raised plat form decorated with mouldings on the plinth was exposed (pl. CXIV B). Cracks in this plinth and the sculptures of elephants were filled in with concreted mortar. The removal of the artificial ramp in front of Cave 14 brought to light the original rock-cut steps, which were repaired with coloured cement-concrete along with the plinth.

The damaged wall to the west of the roofless shrine of Karttikeya attached to Cave 21 was thoroughly repaired and made watertight. Cracks in the walls and pillars of the shrine of Ganesa were filled. The removal of debris from the front of the caves exposed a drain at the base of the plinth-wall and a few brick walls, as also some interesting antiquities of the historical period. One of the front pillars of Cave 26, repaired in the past with ashlar-masonry, was redone in cement-concrete. Repairs were also taken up to the Chhota-Kailasa and other Jaina caves by way of the clearance of storage-tanks, excavation of rock-cut drains and removal of debris to trace the source of leakage.

212. ROCK-CUT CAVES, PITALKHORA, DISTRICT AURANGABAD.—A rock-cut cistern was cleared of debris for the storage of water. The excavation of a rock-cut drain on the top of the cave was started; the work is in progress.

213. PANDULENA CAVES, PATHARDI, DISTRICT NASIK.—The iron staircase near Cave 16 was replaced by a more stable approach to the cave. Dry-stone pitching was undertaken in order to arrest the erosion of earth in front of Cave 11.

214. ROCK-CUT CAVES, JUNNAR, DISTRICT POONA.—A rock-cut drain was excavated over Caves 8 to 15 of the Manmodi group in order to stop the rain-water coming directly over the facade of the caves. For an easy approach to the caves a few steps were cut into the rock. The work is still in progress.

The repairs to the Tulja-lena group of caves, commenced last year (1959-60, p. 109), were kept in progress and a drip-course provided to Caves 3 to 6.

215. ROCK-CUT CAVES, KARLA, DISTRICT POONA.—The broken pillars and missing portions of door-jambs of the *chaitya*-cave were restored in reinforced cement-concrete, chiselled to reproduce the texture of the original rock. The approach-path leading to the cave was maintained by a spread of *morum* and repairs to drains.

216. SINDHUDURG FORT, MALWAN, DISTRICT RATNAGIRI.—The breach in the fortification-wall of the fort on the south-west was made good by setting in position huge boulders weighing 1 to 1.5 tonnes, in cement-mortar. The work required great skill, as it had to be done during the period of low tide and the setting of the mortar had to be accelerated by artificial means so as to avoid its being washed away by waves at high tide.

217. AMBARNATH TEMPLE, AMBARNATH, DISTRICT THANA.—All the open joints in the *sikharas* were filled with tarloid and concrete laid at places to stop percolation of water.

Mysore

218. BAHMANI TOMB, ASHTUR, DISTRICT BIDAR.—The decayed plaster over the dome was removed and fresh plaster laid to make it watertight.

219. GROUP OF MONUMENTS, AIHOLE, DISTRICT BIJAPUR.—The fallen *dhvaja-sthambha* in front of the Ravan-phadi cave was re-erected. The sunken plinth of the porch of the small temple near this cave was re-set. The missing ceiling-slabs of the Lad-khan temple were replaced. The *mandapa* of the Durga temple, open to the sky, was provided with new roof-slabs. Debris was cleared from around this temple. In order to stop the entry of bats, the openings in the Chikki-gudi temple were provided, with *jali*-frames. All open joints in the walls of the temple were filled with cement-mortar.

220. GROUP OF MONUMENTS, BIJAPUR.—The flooring of the *dalans* attached to the Gol-Gumbad and Jod-Gumbad were re-laid with concrete. The decayed plaster of the tombs and walls of the Nav-Gumbad was scraped off and the surface replastered to make the tomb watertight. The missing pavement-slabs of the plinth of Malik Yakub Dabholi's mosque were replaced and the compound-wall repaired.

221. WATER-PAVILION, KUMATGI, DISTRICT BIJAPUR.—The floor of the attached *dalans* and of the main pavilion was concreted and given a proper slope.

222. MUKTESVARA TEMPLE, CHAVDANPUR, DISTRICT DHARWAR.—The fallen portions of the *mandapa* were rebuilt in ashlar-masonry. The *mandapa* was rendered watertight by re-laying concrete on top. The ground-level round the temple was dressed to facilitate the drainage of rain-water. All door-openings in the temple were provided with expanded metal door-shutters to prevent the nuisance caused by bats.

223. SOMESVARA TEMPLE, HARALHALLI, DISTRICT DHARWAR.—The displaced and out-of-plumb masonry of the *mandapa* of the northern shrine was taken up for repairs by way of the removal of the displaced masonry and its reconstruction with the available old stones. The work is in progress.

WESTERN CIRCLE

Gujarat

224. AHMAD SHAH'S MOSQUE, AHMADABAD.—In continuation of the last year's work (1959-60, p. 1ll), the missing parts of the perforated stone window-panels were replaced by new ones of the same pattern after removal of the expanded-metal *jali*.

225. SAYYID USMAN'S MOSQUE AND TOMB, AHMADABAD.—The open space between the mosque and tomb was dressed and a small garden laid out to improve the site. The cement-plastered flooring was removed and redone in lime-cement concreted mortar.

226. BAHLOL KHAN GHAZI'S MOSQUE, DHOLKA, DISTRICT AHMADABAD.—The dis-lodged and sunken brick tile pavement on the southern side of the open courtyard of the mos-que was repaired. The joints of stone pavement on three sides of the mosque were raked out and recess-pointed after the rooting out of all vegetation.

227. KHAN TANK, DHOLKA, DISTRICT AHMADABAD.—The dislodged stones on the eastern side and the south-eastern corner of the tank to a length of about 16 metres were re-set and the open joints treated with recess-pointing after the removal of jungle-growth and debris.

228. MALAV TANK, DHOLKA, DISTRICT AHMADABAD.—The dislodged and sunken stone steps at the Place of Justice were removed and re-set. The bulged-out masonry of the parapet-wall on the east and north was dismantled and reconstructed with ashlar-facing.

229. EXCAVATED REMAINS, LOTHAL, DISTRICT AHMADABAD.—Silted earth was excavated to a depth of 2½ metres from inside the oblong brick structure identified as dockyard, in order to expose the entire plan of the structure. Some structures along Street 4 were con served with specially-manufactured bricks.

230. HIRA GATE, DABHOI, DISTRICT BARODA.—The original basement of the Vidya-natha shrine on the south of Hira gate was excavated and a large quantity of ashlar and sculp-tured stone recovered. The' shrine was partially restored up to the level of the lintel with the use of old architectural pieces following the architectural details of the Kalika temple on the north (pl. CXV).

231. HAZIRA, DANTESWAR, DISTRICT BARODA.—The monument was provided with a lightning-conductor. In continuation of the last year's work (1959-60, p. 112), portions of the exquisitely-carved but broken and damaged panels were repaired and new panels of the perforated screens closely imitating the original pattern were provided in place of the missing ones in the south-western corner of the tomb.

232. JUNAGADHI-MATA TEMPLE, VASAI, DISTRICT JAMNAGAR.—Broken lintels and capitals were replaced. Fresh concrete was provided on the terrace in place of decayed one.

233. TEMPLE, ZINAWALI-GOP, DISTRICT JAMNAGAR.—A lightning-conductor was provided to this important monument.

234. BABA-PYARA CAVES, JUNAGADH.—The masonry pillars constructed in the past were replaced by reinforced concrete pillars, chiselled to match the old pillars in texture and colour.

235. RAHMAT BIBI-KI-MASJID, MANGROL, DISTRICT JUNAGADH.—The tilted pillars of the porch were set right in lime-cement-mortar. The dislodged stone railing with the *kakshasana* was made good after its removal and re-setting in lime-cement-mortar. All the wide joints of the ashlar-masonry were recess-pointed. Missing and broken portions of the carved stone *jali* were replaced.

236. ROCK-CUT CAVES, UPARKOT, JUNAGADH.— As a result of the clearance-*cum*-excavation, some soak-pits, drains, *kachchha* rubble walls and deep cisterns were exposed. For the drainage of rain-water a reinforced cement-concrete pipe was laid in the newly-excavated area.

237. JAMI' MASJID, CAMBAY, DISTRICT KAIRA.—Extensive repairs to this mosque, initiated in the year 1956-57 (1956-57, p. 58), were further continued and the dislodged stones of the huge central courtyard were re-set with a proper bedding to prevent percolation of rain-water. Fresh stones of the same texture were also provided in place of the missing ones. The repairs to the stone pavement of the porch on the northern side were also completed after removing and replacing the exfoliated stones.

238. SIVA TEMPLE, BAVKA, DISTRICT PANCH-MAHALS.—The dislodged stone pavement of the *sabha-mandapa* and the plinth were taken out and re-set in their original places.

239. HALOL GATE, PAVAGARH, DISTRICT PANCH-MAHALS.—The ashlar-masonry just below the existing balcony was removed and re-set in lime-cement-mortar.

240. GROUP OF MONUMENTS, PAVAGARH, DISTRICT PANCH-MAHALS.—The bulged portion of the ashlar-masonry of the second *burj* to the north of Godhra gate was taken down

carefully and re-set in lime-cement-mortar after repairs to the core in random-rubble masonry. The second and third storeys of the Sat-Manzil were made watertight with fresh concrete in place of the old and decayed one (pl. CXVI). A pipe-railing was provided on the terrace to avoid accidents. The debris, accumulated in front of the three cells, was excavated to a depth of about 30 cm. and the area properly dressed.

Rajasthan

241. GROUP OF TEMPLES, BUOLIA, DISTRICT BHILWARA.—The dead concrete of the terrace of the Sahasralinga temple was removed and a layer of fresh cement-concrete provided. The dislodged and sunken stone pavement of the *sabha-mandapa* around the temples of Sahasralinga and Mahakala was re-set in position.

242. GROUP OF MONUMENTS, FORT, CHITORGARH.—Large-scale repairs undertaken to the Ratnesvara temple, which had been in a very bad state of preservation, consisted of the taking down all the component members of the *sabha-mandapa* and reconstructing the same (pls. CXVII and CXVIII) after restoring the tilted pillars in position. The reconstruction was completed up to the lintel-level; further work is in progress. The reconstruction of the front wall of the temple was completed.

The house of Jaimal, which had been in a dilapidated condition, was repaired by way of underpinning the fallen portions of walls, ceiling and staircase (pl. CXIX).

The house of Fatta was provided with concealed reinforced cement-concrete beams and pillars in the core of its walls in order to strengthen the structure. The missing flooring-slabs of the ground-floor rooms were replaced.

The sunken stone pavement of the *naqarkhana* courtyard in Rana Kumbha's palace was re-set on a cushion of cement-concrete, retaining the original features and showing the different phases of construction.

The out-of-plumb masonry of the balcony of Mataji-Kund, which had been taken down previously, was restored on the original lines.

243. GROUP OF MONUMENTS, BADOLI, DISTRICT CHITORGARH.—The cruciform *kund* situated in the courtyard of the inner group of temples was repaired by the re-setting in lime--cement-mortar of the dislodged and tilted ashlar-masonry of the side-walls of the eastern and western flights of steps. The culvert on the aproach-road to the temples was also completed.

244. GROUP OF MONUMENTS, MENAL, DISTRICT CHITORGARH.—A lightning-conductor was fixed to the Mahanal temple. Debris lying around the old well was cleared and the tilted portions of carved ashlar-masonry taken down carefully and re-set in lime-cement-mortar. The triple-shrined temple was also conserved by way of removal and re-setting in lime-cement-mortar of the dislodged ashlar-masonry of the plinth, partition-walls of the *antarala, sikharas* and the roof. The dislodged stones of the roof of *sabha-mandapa* of the Mahanal temple were re-set in lime-cement-mortar and the entire masonry was recess-pointed from inside in order to stop leakage of rain-water. Dead lime-concrete was re moved from the roof of the *sabha-mandapa* for laying a fresh layer of concrete. The debris and dead concrete was also removed from the terrace of the monastery, which was made watertight with fresh concrete.

Extensive jungle-clearance from the top of the temple in the western group as well as from the plinth was completed. Repairs to dislodged flooring in the Nandi-*mandapa* and staircase were also started. Clearance of debris and dressing the area were undertaken on a. large scale,

MONUMENTS MAINTAINED BY STATES

ANDHRA PRADESH

The following monuments received attention :

1. MEGALITHIC MONUMENT, HASHMATPET, DISTRICT HYDERABAD.
2. FORT-WALL, YELGANDAL, DISTRICT KARIMNAGAR.
3. HILL-FORT MOSQUE, YELGANDAL, DISTRICT KARIMNAGAR.
4. NRISIMHASVAMI TEMPLE, YELGANDAL, DISTRICT KARIMNAGAR.

GUJARAT

The following monuments received attention :

5. GANGA-CHHATRI, BHAUNAGAR.
6. FIRANGI TEMPLE, KALSAR, DISTRICT BHAUNAGAR.
7. BRAHMA-KUND, SHIHORE, DISTRICT BHAUNAGAR.
8. SAT-SERI, SHIHORE, DISTRICT BHAUNAGAR.
9. EXCAVATED REMAINS, DEVNIMORI, DISTRICT HIMATNAGAR.
10. BHUJIA FORT, BHUJ, DISTRICT KUTCH.
11. RAOSHRI LAKHAPATJI'S (pl. CXX) AND OTHER CENOTAPHS, BHUJ, DISTRICT KUTCH. .
12. FORT AND TEMPLES, KANTHKOT, DISTRICT KUTCH.
13. SUN TEMPLE, KANTHKOT, DISTRICT KUTCH.
14. OLD SIVA TEMPLE, KERA, DISTRICT KUTCH.
15. OLD SIVA TEMPLE, KOTAI, DISTRICT KUTCH.
16. OLD SIVA TEMPLE, KOTESWAR, DISTRICT KUTCH.
17. FORT AND FORTRESS, LAKHAPAT, DISTRICT KUTCH.
18. OLD SIVA TEMPLE, POONVARAGADH, DISTRICT KUTCH.

KERALA

19. PADMANABHAPURAM PALACE, THUCKALAY, DISTRICT KANYAKUMARI.—The palace was made watertight by way of stopping allleakages. The fallen portion of the Padinjare-Malika was rebuilt.

ORISSA

20. MANIKESVARI TEMPLE, SUKLESWAR, DISTRICT CUTTACK.—In continuation of the previous repairs (1959-60, p. 115), the cracks appearing in the masonry of the temple were filled and the displaced sculptured stones on the temple-wall re-set in position. A roof was provided to stop rain-water entering the temple.

21. BALUNKESVARA TEMPLE, BARAL, DISTRICT PURI—The cracks appearing in the masonry of the main temple, *bhoga-mandapa* and western gate were filled.

22. AKHANDALESVARA TEMPLE, PRATAP-RUDRAPUR, DISTRICT PURI—The cracked portion of the *jagamohana* and the main temple was repaired and the displaced stones of the floor of the former re-set in position. The northern porch of the temple was taken down and re-set.

RAJASTHAN

23. AKBAR'S FORT, AJMER.—Now wooden doors imitating the old Mughul pattern were provided in place of worn-out doors fixed to the side-rooms on the southern side of the courtyard. All cracks in the roof were sealed and extensive clearance of vegetation under taken.

The following monuments also received attention:

24. MUGHUL GATEWAY, BAIRAT, DISTRICT ALWAR.
25. MUCH-KUND TANK, DHOLPUR, DISTRICT BHARATPUR.
26. DILARAM-BAGH, AMBER, JAIPUR.
27. PALACES, AMBER, DISTRICT JAIPUR.
28. ASTRONOMICAL OBSERVATORY, JAIPUR.
29. CENOTAPHS, JAIPUR.
30. HAWA-MAHAL, JAIPUR.
31. NAHARGARH FORT, JAIPUR.
32. DEVALS, MANDORE, DISTRICT JODHPUR.
33. BADAL-MAHAL, SHAHABAD, DISTRICT KOTAH.
34. MOSQUE OF SHER SHAH SURI, SHAHABAD, DISTRICT KOTAH.
35. MARDANA PALACES, UDAIPUR.

IX. ARCHAEOLOGICAL CHEMISTRY

TREATMENT OF MONUMENTS AND PAINTINGS

ANDHRA PRADESH

1. VIRABHADRASVAMI TEMPLE, LEPAKSHI, DISTRICT ANANTAPUR.—In continuation of the previous work (1959-60, p. 116), the accretions of soot, dust and oil on the paintings on the walls and ceilings in the Agastya chamber, circumambulatory passage and store-room were cleaned by the use of various organic solvents (pl. CXXI A). The broken edges of the painted plaster were also filleted.

2. CHENNAKESAVA TEMPLE, SOMAPALLI, DISTRICT CHITTOOR.—The broken edges of paintings were filleted.

BIHAR

3. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.—The stucco figures were cleaned and preserved after filling all the fine cracks (pl. CXXII).

4. JAINA TEMPLE ON VAIBHARA HILL, RAJGIR, DISTRICT PATNA.—The stone images affected by moss and lichen were chemically treated and preserved by removing the algal growth by the application of softening chemicals and scrubbing with soft fibre-brushes, cleaning the stone surface by fungicidal treatment and finally preserving them with vinyl acetate.

5. FORT, ROHTASGARH, DISTRICT SHAHABAD.—The paintings in Man Singh's palace were taken up for chemical treatment and preservation and work over an extensive area was completed. The paintings were also copied for proper record.

DELHI

6. RED FORT, DELHI.—In continuation of previous work (1959-60, p. 116), the marble balcony in the Diwan-i-'Am was freed from the age-old accretions and all the details of the inlay-work successfully brought out. A large number of scenes depicting floral patterns (pl. CXXIII) and birds were exposed as a result of intensive chemical treatment.

The carved marble-screen in the Diwan-i-Khas was chemically treated and the dirt, dust and greasy accretions completely eliminated, thus restoring the carvings to their original condition.

Considerable progress was made in the cleaning and preservation of the golden paintings on the ceiling of the Diwan-i-Khas. The flaking pigments were refixed to the ceiling after eliminating the age-old accretions and softening the loose film of pigments by the use of emulsifying agents. The paintings were further consolidated with preservative solutions. The work is in progress.

GUJARAT

7. TAMBEKARWADA, BARODA.—The paintings on the ceiling and walls of the third storey were chemically cleaned by way of removing the old preservative coat, cleaning the surface and applying fresh preservative.

KERALA

8. MATTANCHERI PALACE, COCHIN.—The broken edges of the paintings were filleted at places.

MADHYA PRADESH

9. DEVI-JAGADAMBI TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—The vegetation and other harmful accretions were eliminated from the stone surface of the temple and fungicidal treatment carried out. The work is in progress.

10. PAINTINGS IN GADA-SHAH PALACE, MANDU, DISTRICT DHAR.—The chemical cleaning and preservation of the paintings in the palace was taken up. The work is in progress.

11. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—The work of removing the tenacious tarry and greasy accretions from the paintings was continued (1959-60, p. 117) and the problem of eradication of salt studied further. It was noticed that the accumulation of large quantities of soluble salts in the painted plaster was due to the seepage of water from the top and back of the caves. It was decided to carry out structural repairs to the caves first and then take up the elimination of salts from the painted surface by physico-chemical methods. Copies of some of the painted panels were made for record. The work is in progress.

12. JAINA COLOSSI, FORT, GWALIOR.—The work of chemical cleaning and preservation (1959-60, p. 117) was completed.

13. STUPA I, SANCHI, DISTRICT RAISEN.—The ancient plaster on the *stupa* was subjected to general cleaning for the elimination of vegetation and algae. The work of fungicidal treatment and consolidation of the friable plaster will be taken up shortly.

MADRAS

14. BRIHADISVARA TEMPLE, THANJAVUR.—The work of cleaning and preservation of the paintings was continued (1959-60, p. 117) in chambers 2, 3 and 4. The old preservative coat was removed and the painted surface subjected to chemical cleaning. The broken edges of the painted areas were also filleted. The work is in progress.

15. JAINA CAVE, SITTANNAVASAL, DISTRICT TIRUCHCHIRAPPALI.—The paintings on the ceiling of the verandah and the shrine, affected at a few places by some insects, resulting in the detachment of the painted layer from the rock-surface, were taken up for preservation (pl. CXXIV). The insects were removed from the painted surface and a fumigant was injected in order to prevent further decay. The paintings, which had been cleaned and preserved in the past, were again cleaned, consolidated and preserved.

MAHARASHTRA

16. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—The cleaning of paintings in Cave 17 was continued (1959-60, p. 118) and the *Hamsa-Jataka* scene on the western wall of the south aisle, covered with dust and dirt in addition to shellac, was taken Up

8—3 Dir. of Acrh/61

for treatment. With the use of organic solvents in various proportions, the shellac was first removed and then accretions on the painted surface were eliminated. Large patches of loose painted stuccos on the ceilings of east aisle in Cave 16 and on the western wall of Cave 17 were consolidated.

17. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—The broken edges of the painted surface in Cave 32 were filleted with plaster of Paris, suitably tinted to match the painted surface.

MYSORE

18. DARYA-DAULAT-BAGH, SERINGAPATAM, DISTRICT MANDYA.—In continuation of previous work (1959-60, p. 118), the paintings on the walls and ceilings in the four rooms of the western and eastern ante-chambers, the central hall and the northern and the southern outer halls were cleaned and consolidated. The work involved the removal of accretions from the painted surface and filleting of the broken edges of the plaster.

ORISSA

19. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The chemical treatment of the *bhoga-mandapa* and the *nata-mandira* (1959-60, p. 118) was taken up and the hard growth of moss and lichen completely eradicated from the temple-surface by chemical cleaning and fungicidal treatment. The stone surface thus cleaned was given a preservative coat.

20. MUKTESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The growth of moss and lichen was eliminated and the temple subjected to fungicidal treatment.

21. RAJARANI TEMPLE, BHUBANESWAR, DISTRICT PURI.—All traces of algae was eradicated from the sculptures and the stone surface of the temple in continuation of the previous work (1959-60, p. 119) and the surface thus cleaned given a preservative coating.

22. MAYADEVI TEMPLE, KONARAK, DISTRICT PURL—Experiments conducted for finding out a suitable waterproofing-material revealed that the decayed stonework can be rendered waterproof by the spraying of silicone-based waterproofing emulsions and colloidal suspension of clays. The work of chemical preservation initiated in the pre vious year (1959-60, p. 119) will now be taken up.

PANJAB

23. TEMPLE, BAIJNATH, DISTRICT KANGRA.—In continuation of the previous work (1959-60, p. 119) the entire temple was freed of moss and lichen, subjected to fungicidal treatment and finally preserved with vinyl acetate solution.

RAJASTHAN

24. JATA-SANKARA TEMPLE, CHITORGARH.—The exterior surface of the temple, cove red all over with moss and lichen, was taken up for chemical treatment and the area over the *sikhara* and *chhatri* was cleaned and preserved. The stone surface over the *mandapa*

and the gate was cleaned and the work of giving it a preservative coat will be taken up shortly.

25. SCULPTURES AND INSCRIPTIONS, NAGARI, DISTRICT CHITORGARH.—The sculptured pillars and the Brahmi inscriptions were chemically treated with a view to eradicating the moss, lichen and other algal growth.

UTTAR PRADESH

26. CHINI-KA-RAUZA, AGRA.—The preservation of tile-work in this monument was kept in progress (1959-60, p. 119) and the greater part of the tiled area was subjected to elaborate chemical cleaning, as a result of which all harmful accretions were eliminated and the glazed tiles rendered clean and bright by the use of organic solvents and reagents free from any bleaching action. The work is in progress (pl. CXXI B).

Experimental work on the remnants of paintings inside the monument was conducted with a view to evolving suitable reagents and techniques for eliminating the hardened varnish and other accretions. Suitable reagents and solvents were prepared, which, in conjunction with emulsifying agents and restrainers, are likely to be very effective in the softening and removal of the age-old,hard accretions which at present obscure the paintings.

27. ASVAMEDHA SITES, JAGATGRAM, KALSI, DISTRICT DEHRA DUN.—The ancient bricks from this site were showing signs of decay as a result of vegetation-growth and other factors. The bricks were, therefore, carefully subjected to chemical cleaning and fungicidal treatment and were finally preserved with synthetic resin solutions. The work was completed, but periodical chemical treatment of the bricks will be undertaken.

28. NIRVANA AND MATHAKUAR SHRINES, KUSINAGARA, DISTRICT DEORIA.—As a result of the experiments conducted for finding out suitable adhesives for fixing gold leaves (1959-60, p. 119) the work of eliminating the salts from the images was completed and gold leaves fixed to the surface by synthetic adhesives.

29. GUPTA PILLAR, BHITARI, DISTRICT GHAZIPUR.—The pillar was subjected to fungicidal treatment after the elimination of algal growth. It was also consolidated with synthetic resin solutions for the proper preservation of the inscribed surface.

30. BRICK TEMPLE, BHITARGAON, DISTRICT KANPUR.—The terracotta plaques on the temple-surface, which had been flaking as a result of absorption of injurious soluble salts, were taken up for treatment, and the salts and the growth of algae eliminated. Fungicidal treatment was also administered and the plaques finally preserved with vinyl acetate.

31. DHAMEKH STUPA, SARNATH, DISTRICT VARANASI.—The surface of the *stupa* was encrusted with moss and lichen and carved panels were showing signs of decay as a result of salt-action. In order to preserve the surface, all the panels were freed of algae and then subjected to fungicidal treatment to prevent the recurrence of vegetation-growth. The panels were consolidated by the use of synthetic resin solutions.

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM-EXHIBITS

Nearly two thousand five hundred and twenty antiquities, variously of copper (pl. CXXV), bronze (pl. CXXVI), lead, silver and iron, were subjected to chemical, electro-chemical and electrolytic treatment. These antiquities, together with those received during last year, were successfully cleaned by the use of suitable reagents and mended, consolidated and preserved with synthetic resin solutions.

ANALYSES AND RESEARCH

1. GEOCHRONOLOGICAL STUDIES.—The study of soil-samples from the excavated trenches at Lothal, District Ahmadabad, and Rangpur, District Surendranagar, and from the quarry at Adamgarh, District Hoshangabad (1959-60, p. 120), was completed. Further geochronological study of the tool-bearing soil-deposit from the excavated trenches at Adamgarh is contemplated in order to understand the environmental conditions and the relation between the microliths and the soil-deposits in which they were found.

The geochronological studies of samples of laterite-formations from Vellore, Andhra Pradesh, were continued (1959-60, p. 120) and the identification of minerals and study of heavy minerals and light crops was nearly completed. The samples were also subjected to mechanical analysis; the data are being worked out.

Samples of sand were collected from the sand-dunes of Rajasthan for study of surface-features and other properties of desert-sand. The samples were subjected to heavy-mineral analysis and the experimental and petrographical data are being analysed. The method of fluorine determination in bone specimens was studied and experiments were conducted under carefully-controlled conditions for determining the limitations and accuracy of different methods of fluorine analysis.

2. PRESERVATION OF PAINTINGS.—Persistent experiments were carried out in the laboratory for finding out suitable methods for softening brittle pigment-layers (1959-60, p. 120). It was found that they can, to some extent, be softened with the help of emulsifying agents and detergents. The data will, however, be tested in the field before a final technique is evolved.

Attention was also directed on the problem of the elimination of hard darkened varnished or greasy accretions which are usually found on painted surfaces in many monuments. Suitable organic reagents, emulsifiers, detergents and restrainers were found, in some cases, to yield satisfactory results, though some hardened accretions of varnish, grease or soot were found to be very resistant to the action of these reagents. Experiments are in progress for finding out a reagent or a group of chemicals which can be effectively used for the eradication of such accretions.

3. STUDIES OF BUILDING-MATERIAL.—Specimens of building-materials from the excavated remains at Nagarjunakonda, District Guntur, were studied in detail and a great amount of analytical work conducted with a view to determining the nature and composition of mortars, plasters and bricks used in ancient times.

4. STUDY OF GLASS AND CERAMICS.—Glass specimens from Kopia, District Basti (1959-60,p. 121) were subjected to chemical analysis and their physical properties, such as colour, texture, hardness and density, studied. The technique of fabrication of the glazed pottery from Bhitari, District Ghazipur, was studied by undertaking chemical analysis of several sherds from the site.

5. TREATMENT OF MARBLE.—Experimental work was undertaken with a view to evolving suitable methods and techniques for the removal of dark greasy accretions from marble-work. The results will be of use in the cleaning of marble from many Mughul monuments.

6. PRESERVATION OF SKELETAL REMAINS.[*]—About twenty human skeletons from the excavated megalithic monuments at Yelleswaram, District Nalgonda, were chemically cleaned and preserved.

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[*] Information about this item from the Director of Archaeoloey, Andhra Pradesh State, and rest from the Archaeological Chemist in India.

X. ARCHAEOLOGICAL GARDENS[1]

ANDHRA PRADESH

1. HILL-TOP, NAGARJUNAKONDA, DISTRICT GUNTUR.—Preliminary operations, specially a clearance of the site, were extended to cover a wide area, and a few lawns were laid out. New rockeries were set up and planted.

BIHAR

2. MUSEUM, BODH-GAYA, DISTRICT PATNA.—Preliminary operations for laying gardens were completed. Two plots in front of the Museum were grassed and flowering shrubs and trees planted.

3. EXCAVATED REMAINS, KUMRAHAR, PATNA.—Pathways were laid out, so as to divide the entire area into four sectors. One of them was specially developed for picnics and the second made into a formal garden with four plots; the third is intended to become a landscape garden, and the fourth, around the pillared hall, is being developed into spacious lawns with shrubs, trees and flower-beds.

4. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.—A small tube-well was bored in the Museum-premises and fitted with an electric pumping-set. The major part of the work of laying out a terraced garden on the high ground to the south of the excavated remains was completed.

DELHI

5. QUTB, DELHI.—The old shrubbery around the *madrasa* of 'Alau'd-Din Khilji was replaced by a new lawn and pathways. The rustic garden (1959-60, p 122) was further extended and provided with matching furniture.

6. RED FORT, DELHI.—Four lawns were returfed around the Fort Museum and the Diwan-i-Khas and a new lawn laid out near the Battery terrace. The trees were subjected to heavy lopping for proper shaping.

7. 'ABDUR-RAHIM KHAN-I-KHANAN, NEW DELHI.—The upright cypresses were trimmed and shaped, and many new varieties of plants were introduced in the shrubberies.

8. HAUZ-KHAS, NEW DELHI.—Overhead tanks were built to facilitate irrigation by gravitation.

9. HUMAYUN'S TOMB, NEW DELHI.—The paths in the Bu-Halima garden and between the two main gates were edged with vertical red-sandstone slabs. Many new varieties of bougainvillaeas, cacti succulents, coleuses, chrysanthemums, etc., were introduced to enrich the nursery.

[1] Information : 16 and 19, the Directors of Archaeology, Kerala and Rajasthan States, respectively; test, from the Garden Superintendent and Assistant Garden Superintendent of the Survey.

10. JANTAR-MANTAR, NEW DELHI.—The sides of the main pathway were edged with iresemum, and bougainvillaeas were introduced as dot-plants along the compound-wall. The unwanted hedges of ingadulcis were removed and some pathways re-oriented.

11. KOTLA FIRUZ SHAH, NEW DELHI.—Unshapely trees were lopped off to impart proper shapes to them.

12. LODI TOMBS, NEW DELHI.- The cleredendron-cover on the slopes of Muhammad Shah's tomb was removed and the slopes were replanted with select ornamental creepers

13. NAJAF KHAN'S TOMB, NEW DELHI.—Beds for annuals were laid out on both sides of the leading pathways.

14. SAFDARJANG'S TOMB, NEW DELHI.—The flower-beds for annuals were suitably cut to new shapes and sizes. Small square plots were re-laid to larger sizes and returfed. More canna-beds. were laid along the periphery to add colour to the surroundings.

MADHYA PRADESH

15. WESTERN GROUP OF TEMPLES, KHAJURAHO, DISTRICT CHHATARPUR.—In view of the scarcity of water, hardy flowering trees, shrubs and creepers were introduced.

MADRAS

16. PALACE AND MUSEUM, PADMANABHAPURAM, DISTRICT KANYAKUMARI.—Ossium and rose were planted in the front courtyard of the palace and in the inner quadrangle of the Museum.

MYSORE

17. GOL-GUMBAD, BIJAPUR.—In the first terrace around the main mausoleum, four plots were cleared of rubble, dressed and grassed. The road leading to the mausoleum was planted with *Thuja compacta* and long beds with seasonal flowers. Roads and paths were laid out in an area of over 20 hectares and flowering and shady trees planted along the road-side. An old defunct well within the compound was cleaned and water-supply from it restored.

18. JOR-GUMBAD, BIJAPUR.—The area within the compound was thoroughly cleaned for the first time, and lawns, shrubberies and hedges were laid out and planted.

RAJASTHAN

19. MISCELLANEOUS GARDENS.—The Dilaram garden and Mohan-bari at Amber, gardens attached to the monuments at Mandor,lawns in the observatory at Jaipur and in the Museum at Bharatpur received attention. The Mohan-bari is being provided with new plants

20. PALACES, DIG, DISTRICT BHARATPUR.—A rosarium and rose-border were added to cover areas of 250 and 220 sq. metres respectively. Similarly a new shrubbery was laid out to cover about 400 sq. metres.

UTTAR PRADESH

21. FORT, AGRA.—Lawns were freed from weeds and the colour-scheme of the annuals improved.

22. 'ITIMADU'D-DAULA'S TOMB, AGRA.—The weed-infested lawns were freed of intrusive grass.

23. KHAN-I-'ALAM, AGRA.—The old China-clay pipe-line from the Saheli-Burj to the nursery, which had outlived its life, was replaced with a new one. A large number of plants of different varieties were raised in the nursery to meet the growing demand of the gardens of the Survey. About ten thousand plants of different varieties were taken out of the beds, packed and despatched to various gardens. The old glass-house was renovated.

24. RAM-BAGH, AGRA.—The gardens were returfed with Calcutta grass.

25. TAJ-MAHAL, AGRA.—Lawns were deweeded and beds of annuals re-arranged to improve the colour-scheme.

26. EXCAVATED REMAINS, KUSINAGARA, DISTRICT DEORIA.—The area under the plantation of *sal (Shorea robusta)* was taken over from the State Government. All wild growth around the monuments was cleared and the lawns and shrubbery borders improved.

27. RESIDENCY, LUCKNOW.—The lawns around the Model-room were returfed. New flower-beds were laid out in the cemetery-area. A tube-well of 13-cm. diameter was bored in one of the old wells and provided with an electric centrifugal pump.

28. EXCAVATED REMAINS AND MUSEUM, SARNATH, DISTRICT VARANASI.—A well near the Museum was rebored and provided with an electric pumping-set of 13-cm. diameter. The lawns were enriched with manure and fertilizers, which increased their vendure. A small nursery was also added to provide for local needs.

XI. PUBLICATIONS

PUBLICATIONS OF THE SURVEY

1. 'ANCIENT INDIA'.—Numbers 16 and 17 (1960 and 1961) are in the press.

2. 'ANNUAL REPORT ON INDIAN EPIGRAPHY'. -The *Reports* for 1954-55 and 1955-56 were published, while that for 1957-58 was passed for final printing. The *Reports* for 1956-57, 1958-59 and 1959-60 are going through the press.

3. CORPUS INSCRIPTIONUM INDICARUM SERIES.—Part ii of volume II, *Bharhut Inscriptions* by Heinrich Lueders, and volume V, *Inscriptions of the Vakatakas,* by V. V. Mirashi, will be published shortly.

4. 'EPIGRAPHIA INDICA'.—The following parts were published: parts viii (October 1956) of volume XXXI; ii (April 1959), iii (July 1959), iv (October 1959), v (January 1960), vi (April 1960) and vii (July 1960) of volume XXIII; and i (January 1961), ii (April 1961) and iii (July 1961) of volume XXXIV.

Parts viii (October 1958) of volume XXXII and iv (October 1961) and v (January 1962) of volume XXXIV were passed for final printing.

The following are in the press : parts viii (October 1960) of volume XXXIII; vi (April 1962) and vii (July 1962) of volume XXXIV; i (January 1963), ii (April 1963), iii (July 1963), iv (October 1963), v (January 1964), vi (April 1964) and vii (July 1964) of volume XXXV and i (January 1965), ii (April 1965) and iii (July 1965) of volume XXXVI.

5. 'EPIGRAPHIA INDICA—ARABIC AND PERSIAN SUPPLEMENT'.—The numbers for 1955 and 1956 and for 1957 and 1958 were published. The number for 1959 and 1960 is in the proof-stage.

6. GUIDE-BOOKS.—*Chola Temples* by C. Sivaramamurti was published. The second edition of *Bhubaneswar* by Debala Mitra will be published shortly. The Hindi versions of *Ajanta* and *Sravasti* were printed, while those of *Sanchi, Rajgir* and *Kusinagara* will be out shortly.

7. 'INDIAN ARCHAEOLOGY—A REVIEW'.—The number for 1959-60 was published.

8. 'INDIAN MINIATURES—AN ALBUM'.—An album of Indian miniatures, representing different schools of medieval paintings, was published.

9. MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA.—Number 74, *Kausambi,* by G. R. Sharma, is under print.

10. PICTURE-POSTCARDS.—The sets of Ajanta (both black-and-white and in colour) Aihole, Aurangabad and Daulatabad, Badami, Bijapur, Elephanta, Ellora, Khajuraho and Patadkal were reprinted. New sets of Agra (A and B), Ajmer, Bijolia, Menal and Pushkar were printed.

11. SOUTH INDIAN INSCRIPTIONS SERIES.—The printing of volumes XIV, *Inscriptions of the Early and Medieval Pandyas,* XVII, *Inscriptions collected during* 1903-04, and XX, *Bombay-Karnatak Inscriptions,* is progressing.

12. TEMPLE-ARCHITECTURE SERIES.—The *Cave-temples of the Pallavas,* by K. R. Srinivasan, is passing through the press.

OTHER PUBLICATIONS

1. COLLECTIONS OF INSCRIPTIONS.—The Director of Archaeology, Andhra Pradesh State, brought out (i) *Corpus of Telengana Inscriptions of Hyderabad State,* (ii) *Corpus of Kannada Inscriptions of Hyderabad State* and (iii) *Kannada Inscriptions in Andhra Pradesh.*

Volume XVII of *Epigraphia Carnatica* was published by the Director of Archaeology, Mysore State.

2. EXCAVATION-REPORTS.—The Directors of Archaeology, Andhra Pradesh and Mysore States, respectively published *Piklihal,* by F. R. Allchin, and *Jadigenhalli. Vaisali* 1950, by Krishna Deva and Vijayakant Mishra, was produced by the Vaisali Sangh.

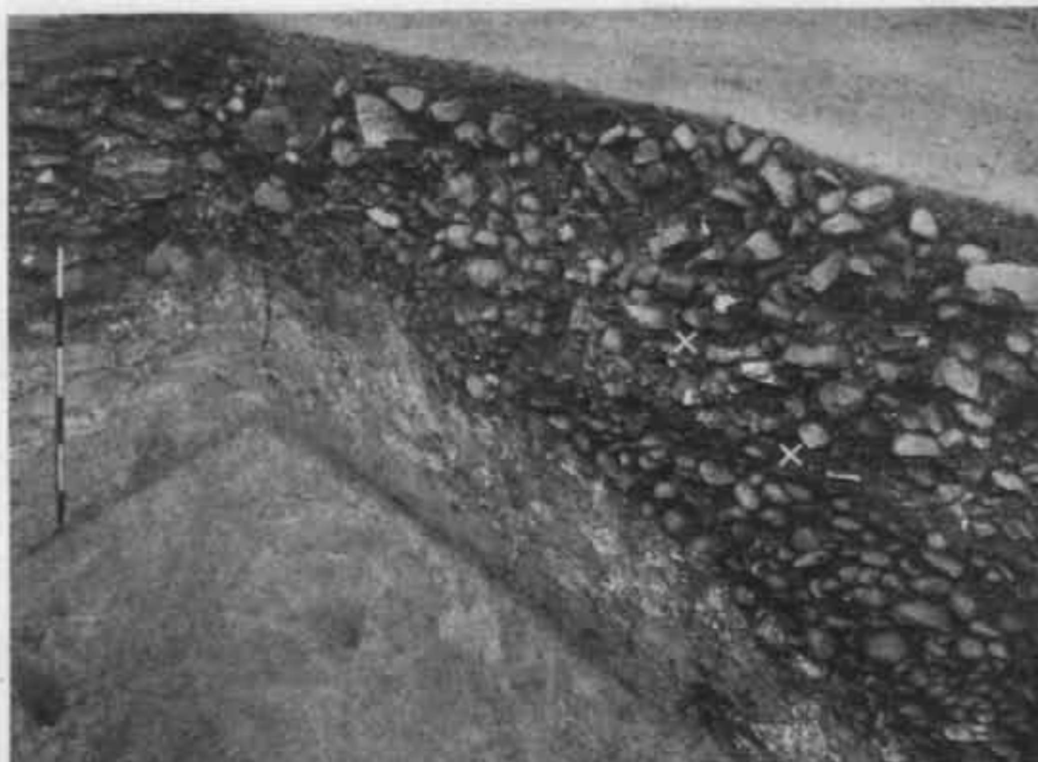
3. GUIDE-BOOKS.—The Director of Archaeology, Mysore State, published *Belur* in Hindi.

The Curator, Central Museum, Indore, brought out English and Hindi guide-books to his Museum.

4. MUSEUM-CATALOGUES.—The Director of Archaeology, Andhra Pradesh, produced three catalogues of coins in the Hyderabad Museum—*Punch-marked Coins,* by P. L. Gupta, *Satavahana Coins,* by M. Ramarao, and *Qutb-Shahi Coins,* by Abdu Wall Khan.

TheDirectorof Archaeology and Museums, Rajasthan State, published nine catalogues and handbooks.

5. PICTURE-POSTCARDS.—The Superintendent of Archaeology and Museums, Orissa State, published two sets of picture-postcards relating to the Museum.

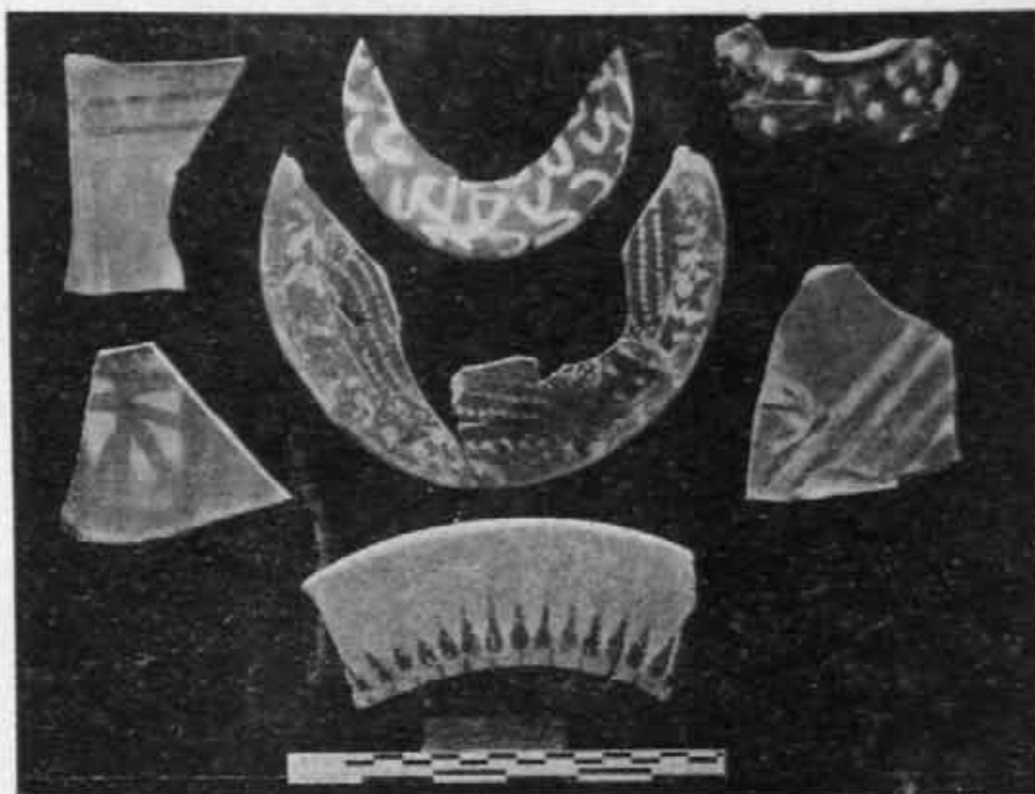


A

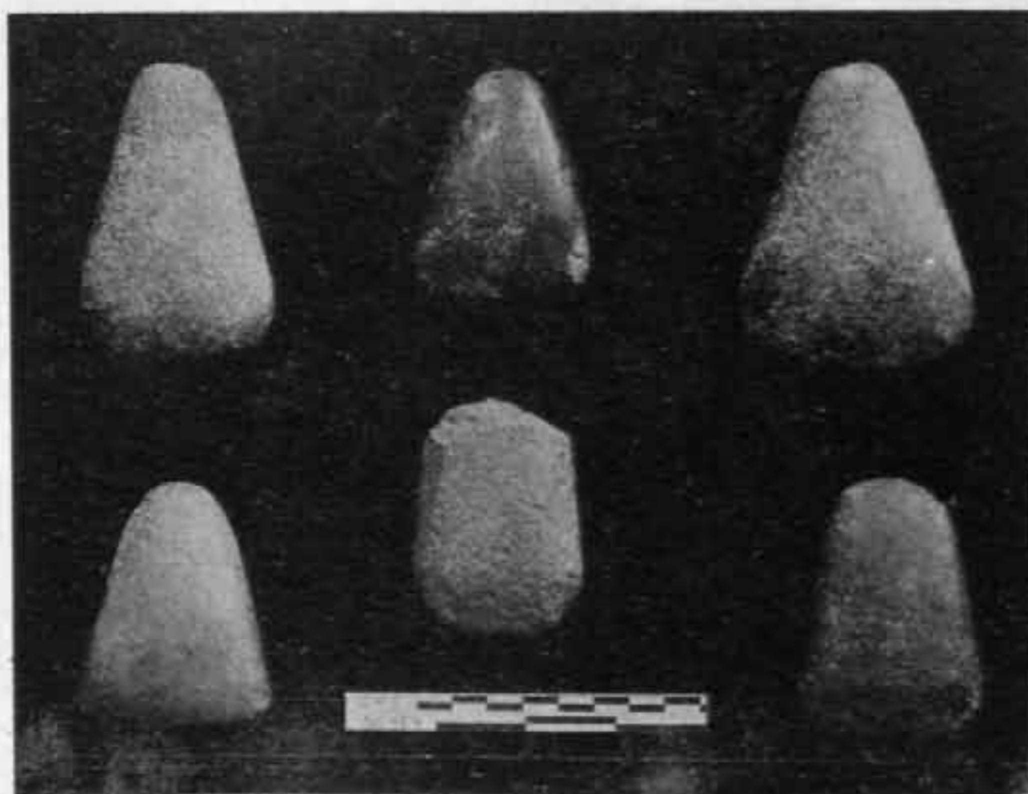


B

A, *Nagarjunakonda : section through the palaeolithic site (scale of feet)*; B, *Budhiyana hill : drain (scale of foot-and-inches). See pp.* 1 *and* 4

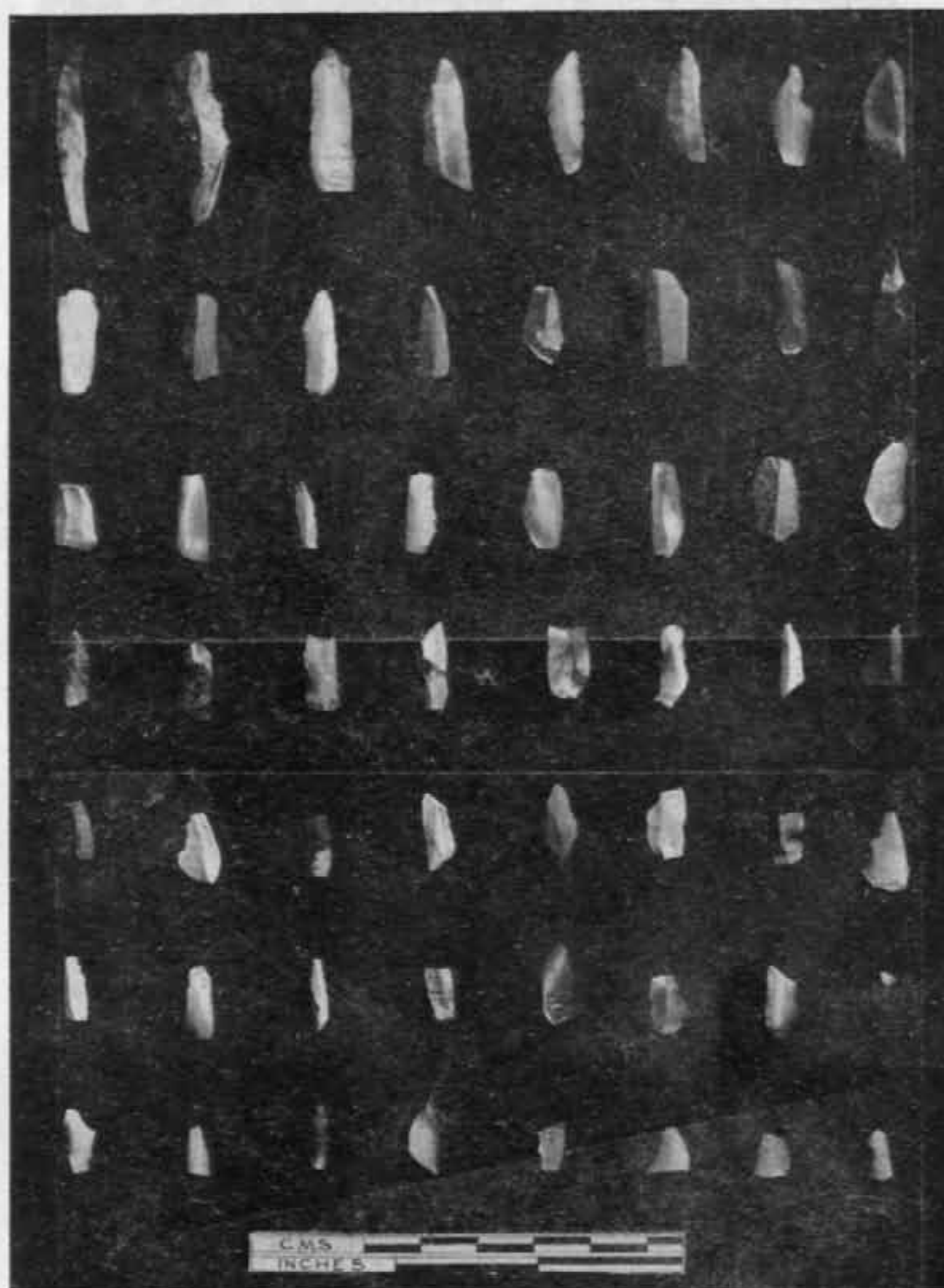


A



B

Sonpur : A, *painted pottery*; B, *polished stone axes. See p.* 5



Sonpur : microliths. See p. 5

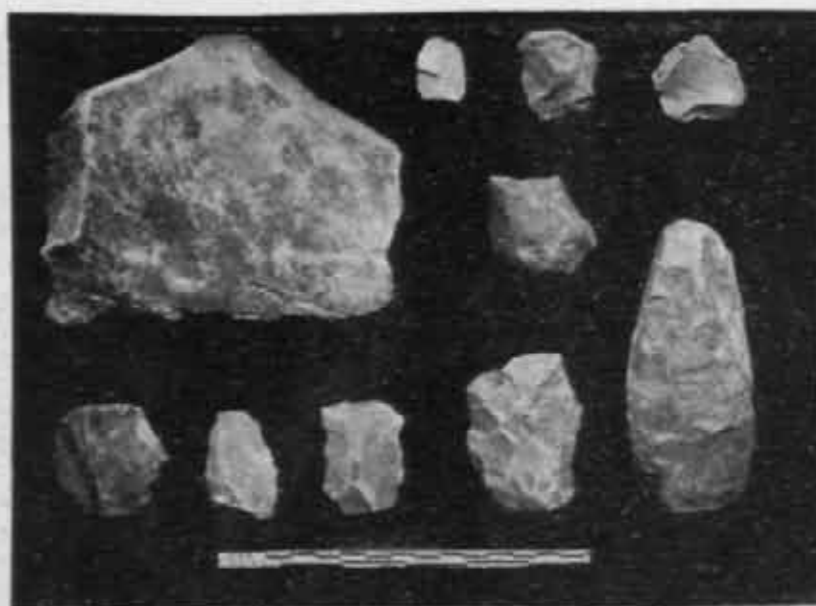


A

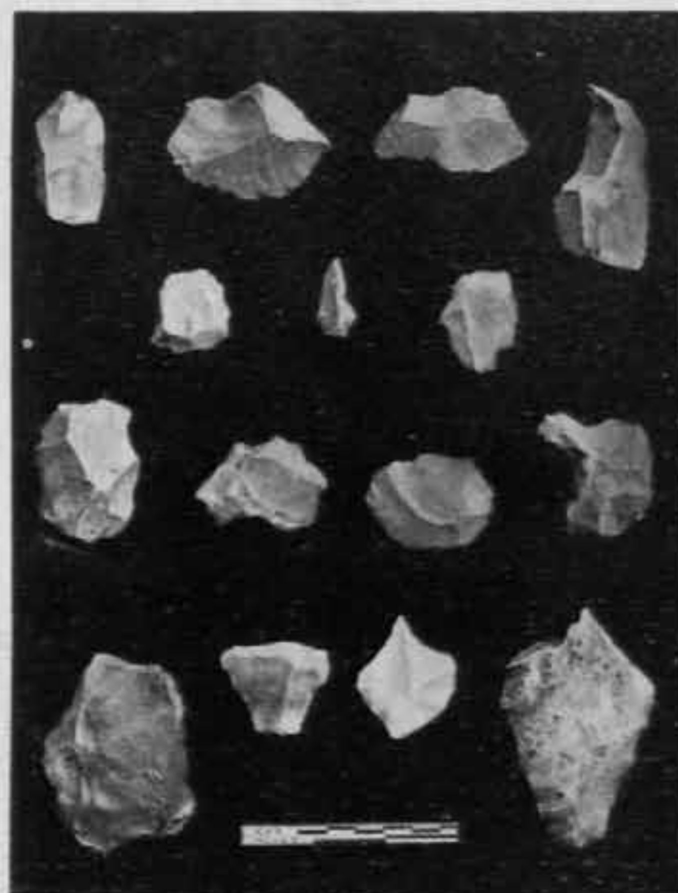


B

Bhimbandh : A, *tools of Series II;* B, *microliths. See p.* 5



A



B

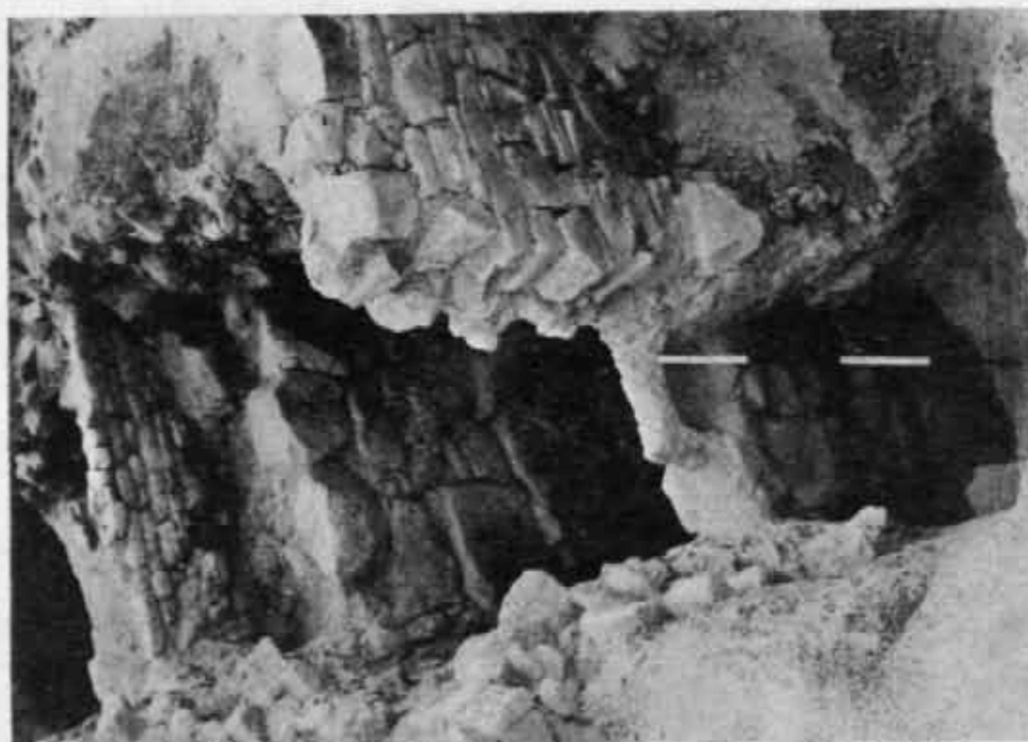
A, *Paharpur and Mohantada: tools of Series II and microliths;* B, *Bandarkola and Amjani: tools of Series II and microliths.* *See p.* 6



Vaisali: brick shrine (scale of foot-and-inches). *See p. 6*



A



B

Lal-Kot: A, *dressed stone facing of the inner wall*; B, *reinforced rubble wall (scale of feet)*. *See p. 6*



Devnimori : the vihara. *See p. 9*



A



B

Devnimori: parts of the vihara with two Phases of walls and courtyard (scales of feet). *See p. 9*



Devnimori: silver Kshatrapa coins. *See p. 9*



A



B

Devnimori: A, *northern face of the stupa;* B, *wall of the pradakshina-patha showing repairs (scale of feet). See p.* 10

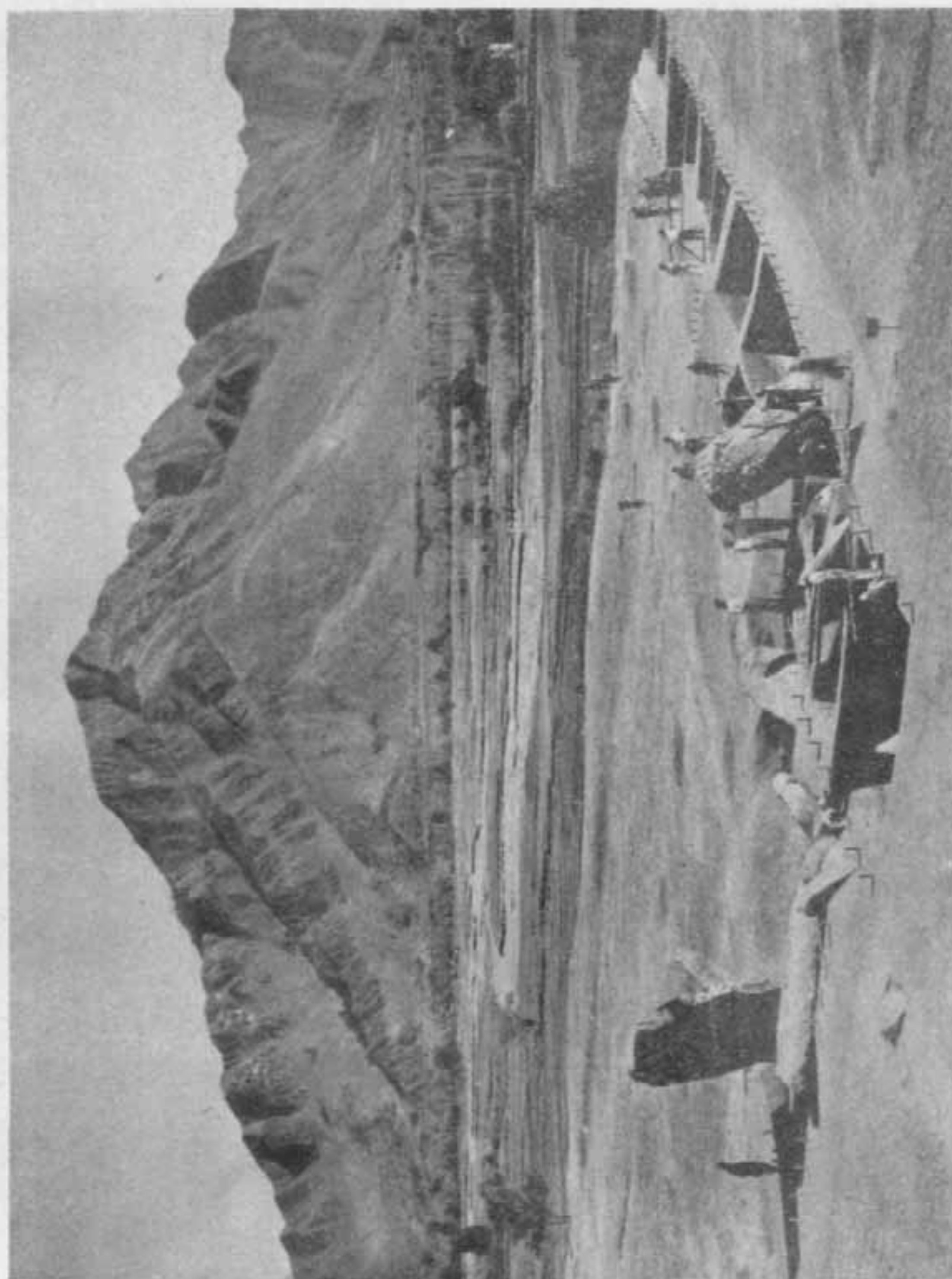


A



B

Devnimori: A, *gold objects* (⅞); B, *microliths* (½). *See pp.* 10 *and* 11



Burzakom: excavation in progress. *See p.* 11

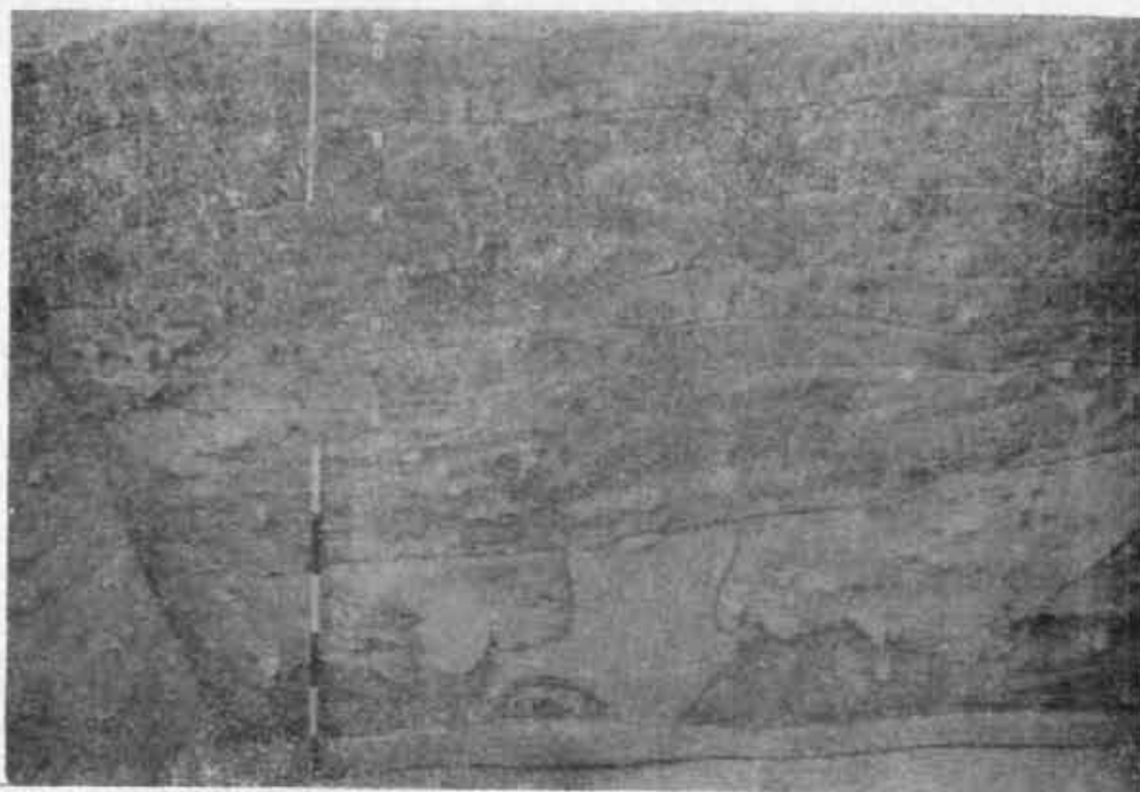


A

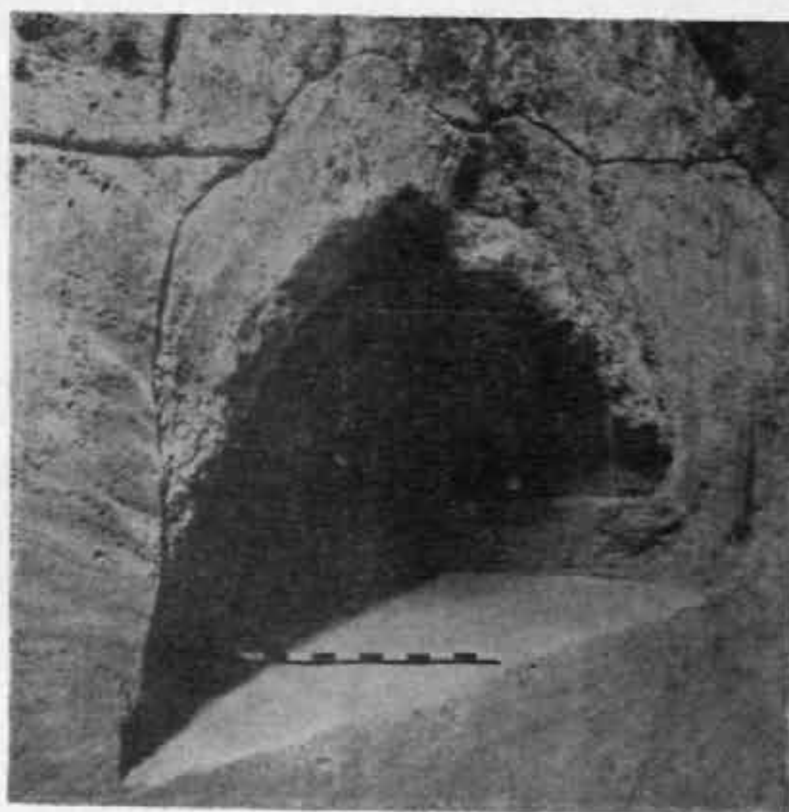


B

Burzahom : dwelling-pits (scales of feet). *See p. 11*

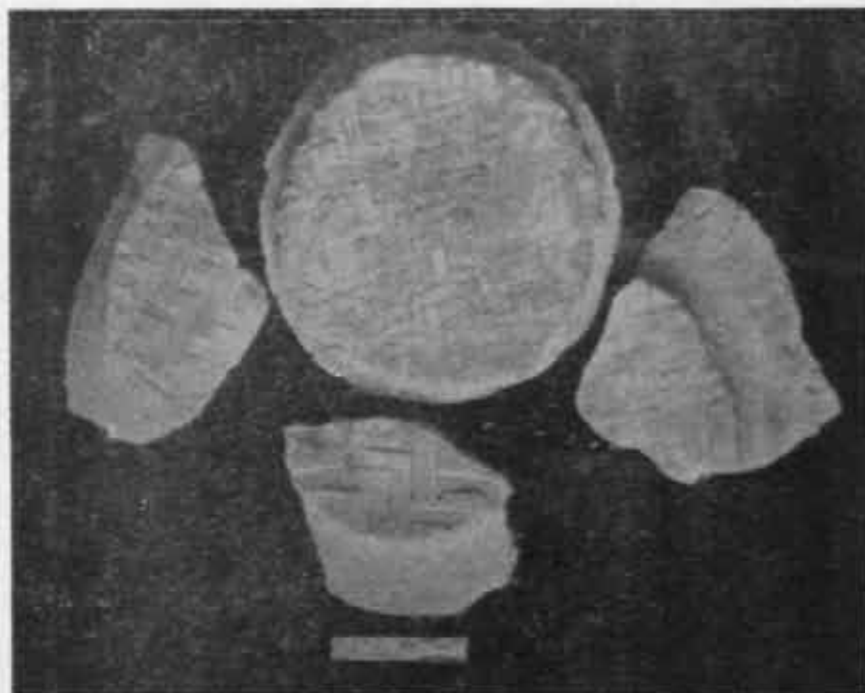


A



B

Burzahom: A, *dwelling-pits disturbed by later deposits (scale of feet);* B, *corridor joining two pits (scale of inches).* *See p.* 11

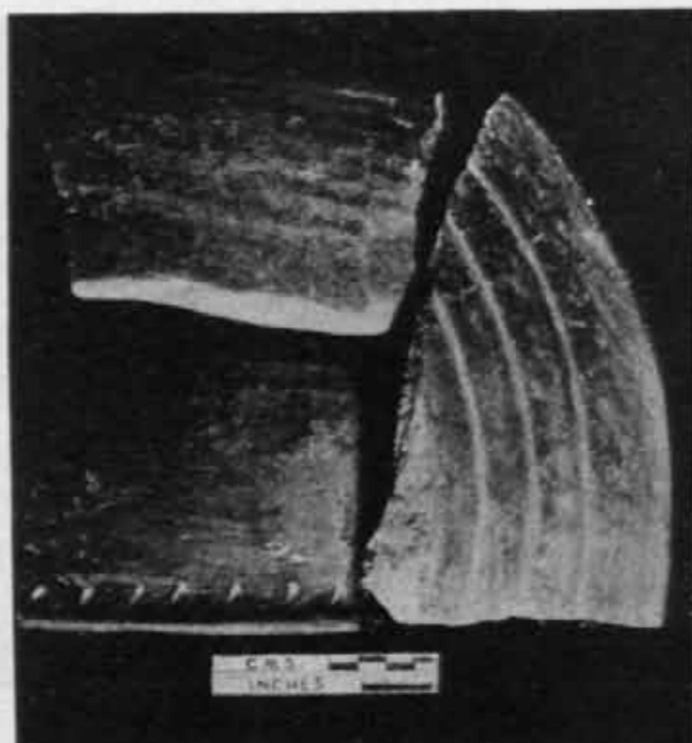


A

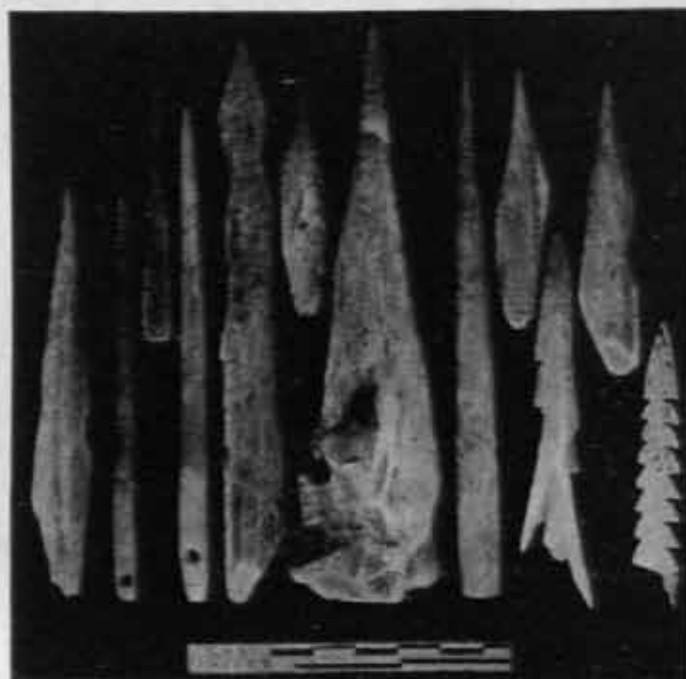


B

Burzahom: A, *mat-impressed pottery;* B, *high-necked jar.* See p. 11

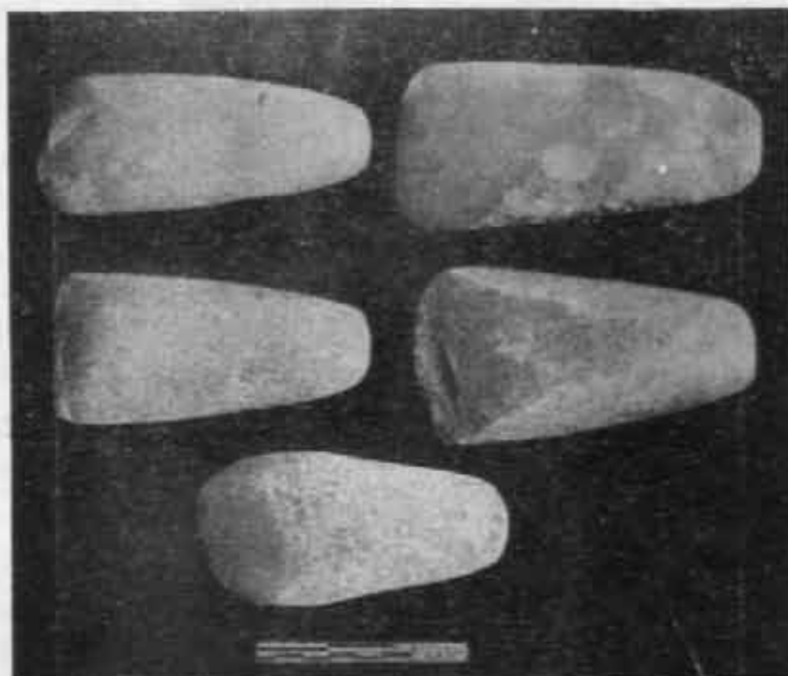


A

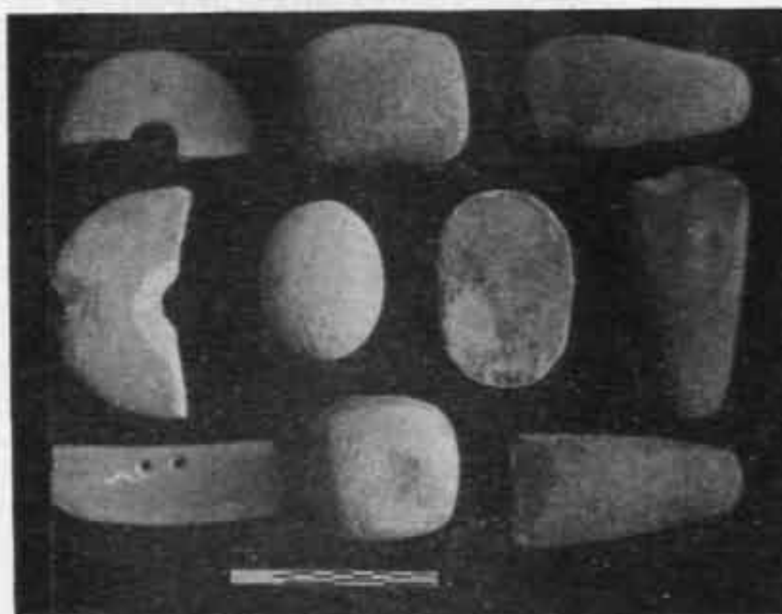


B

Burzahom: A, *black burnished ware;* B, *polished bone tools. See p.* 11



A



B

Burzahom: A, *polished stone axes*; B, *stone objects. See p.* 11

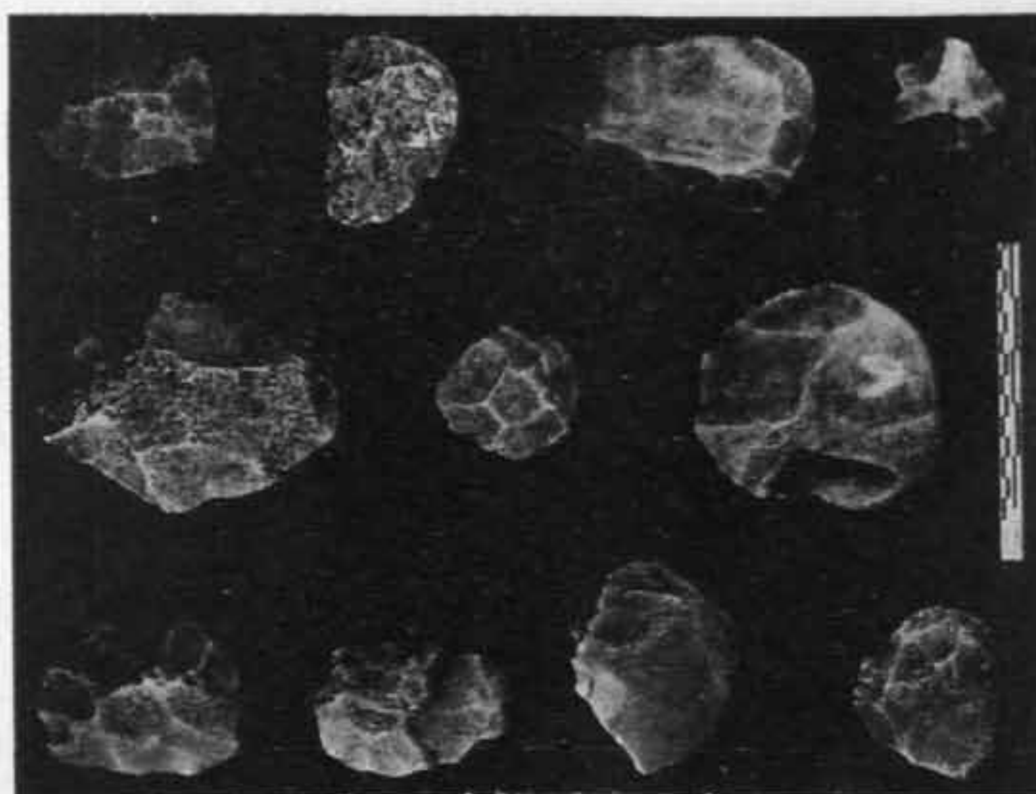


B

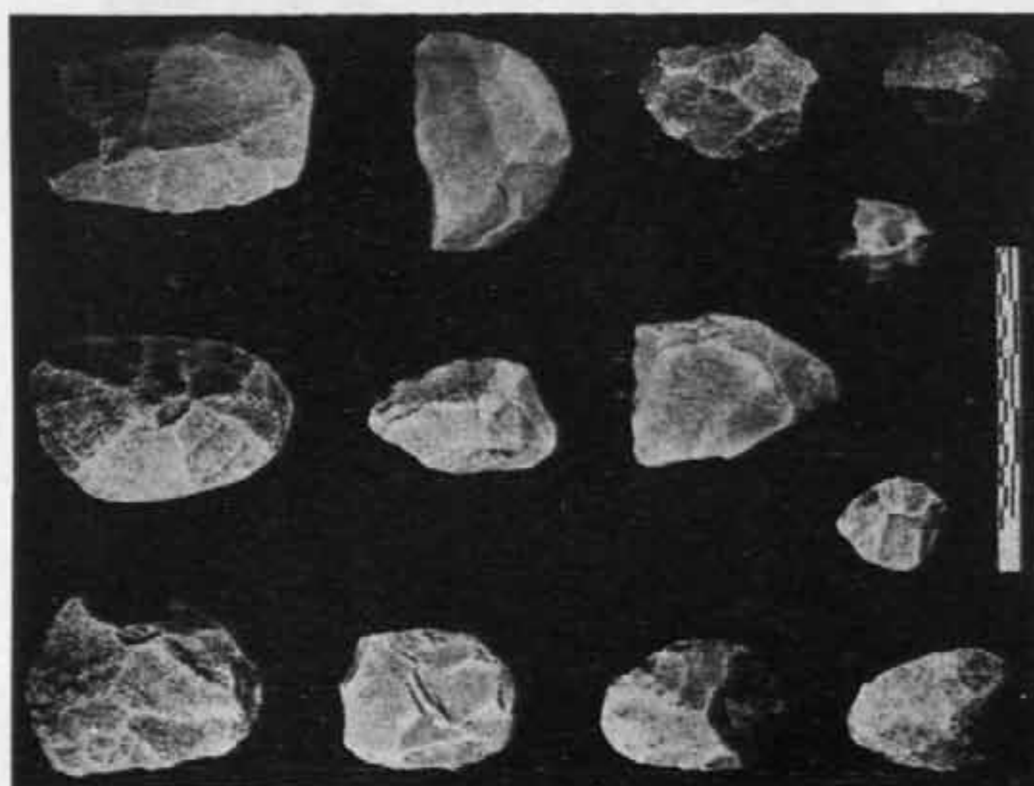


A

Burzahom : A, *communal hearth* (?) (*scale of feet*); B, *last occupational phase over earlier pit-dwelling* (*scale of feet*). *See p.* 11

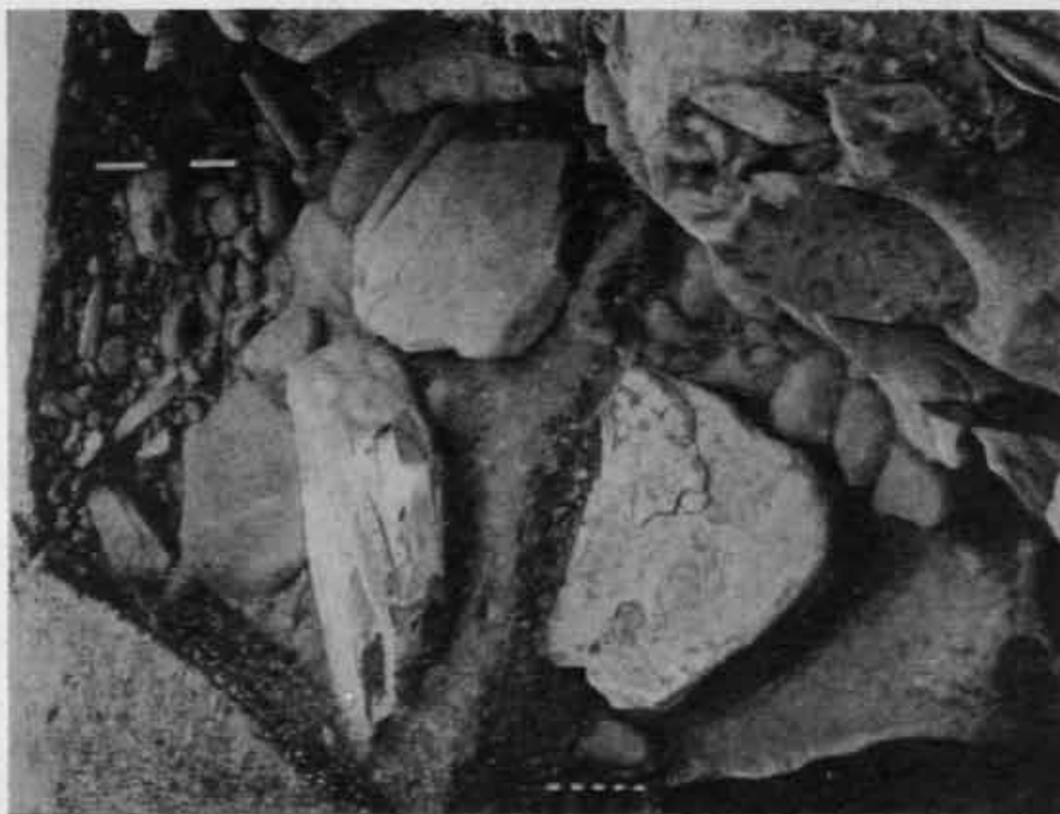


B



A

Adamgarh : palaeoliths. See p. 13



A



B

Adamgarh: A, *section through the palaeolithic site (scales of feet and inches);* B, *black soil and angular débris (scale of feet).* *See p.* 13

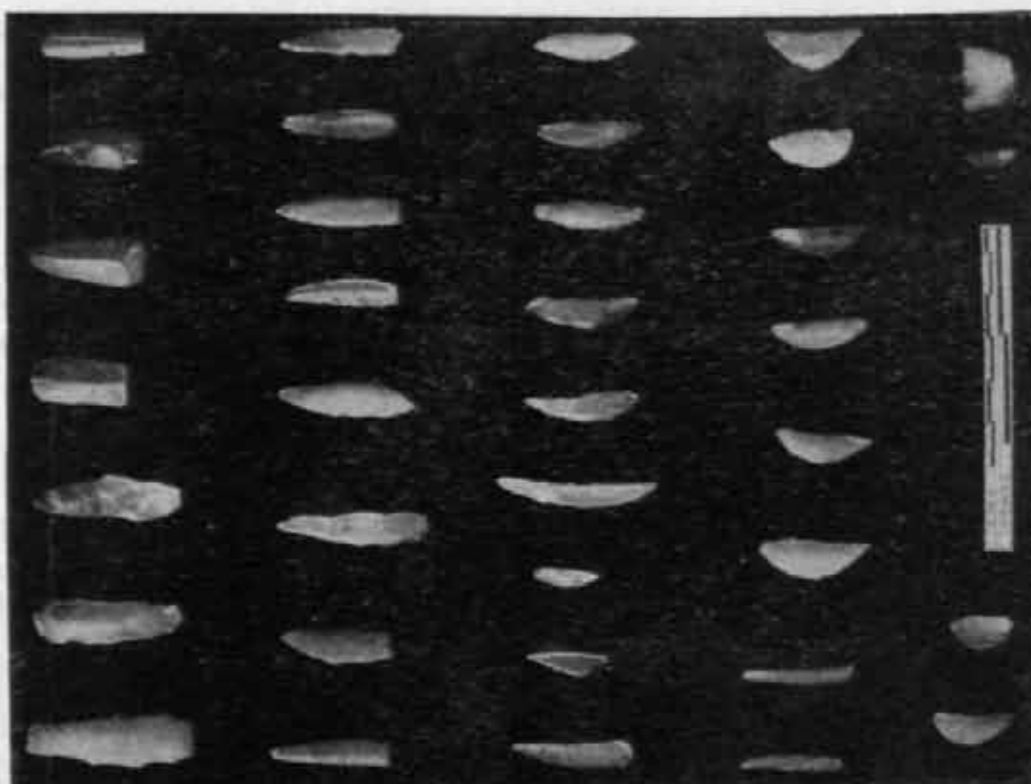


A

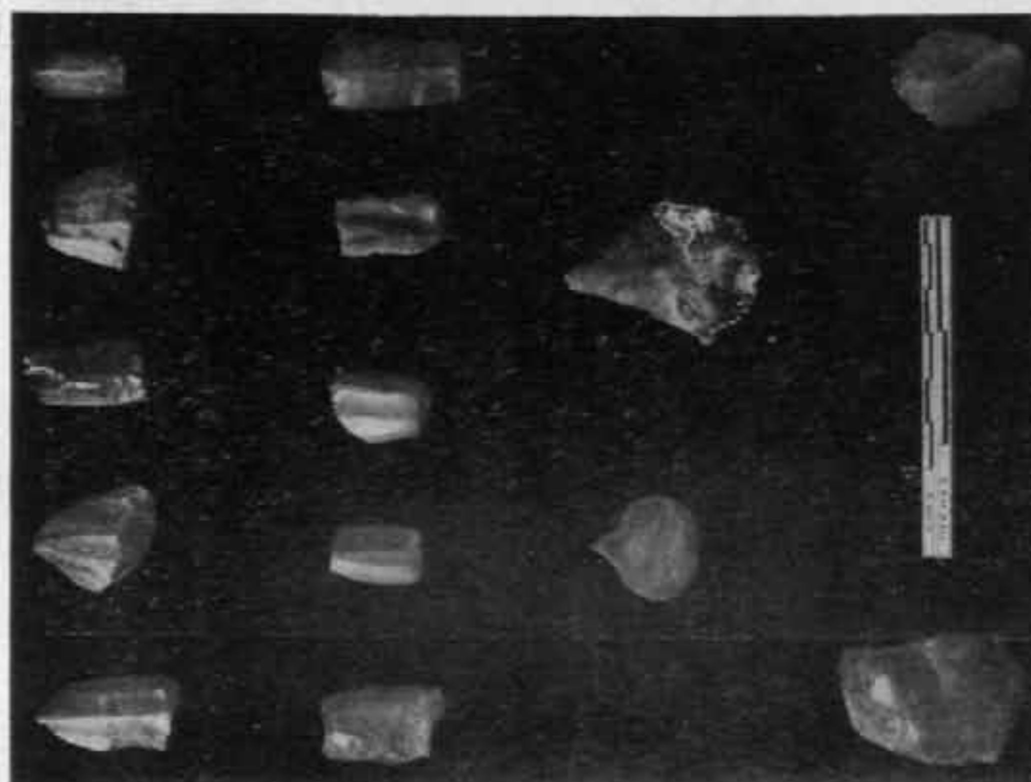


B

Adamgarh: A, *cliff-section showing lateritic gravel and red clay with débris* (*scale of inches*); B, *trench in front of rock-shelter*. See p. 13

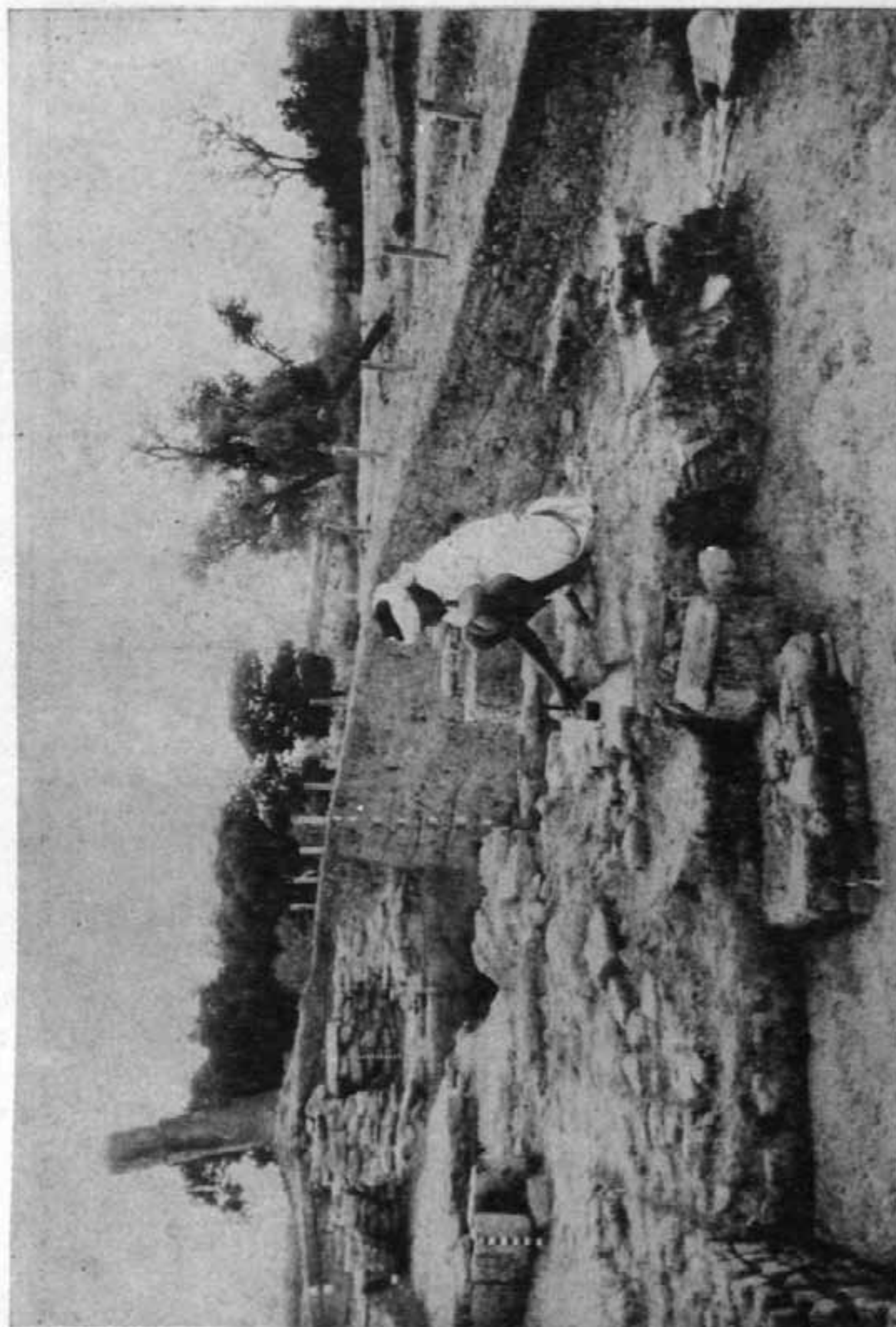


B

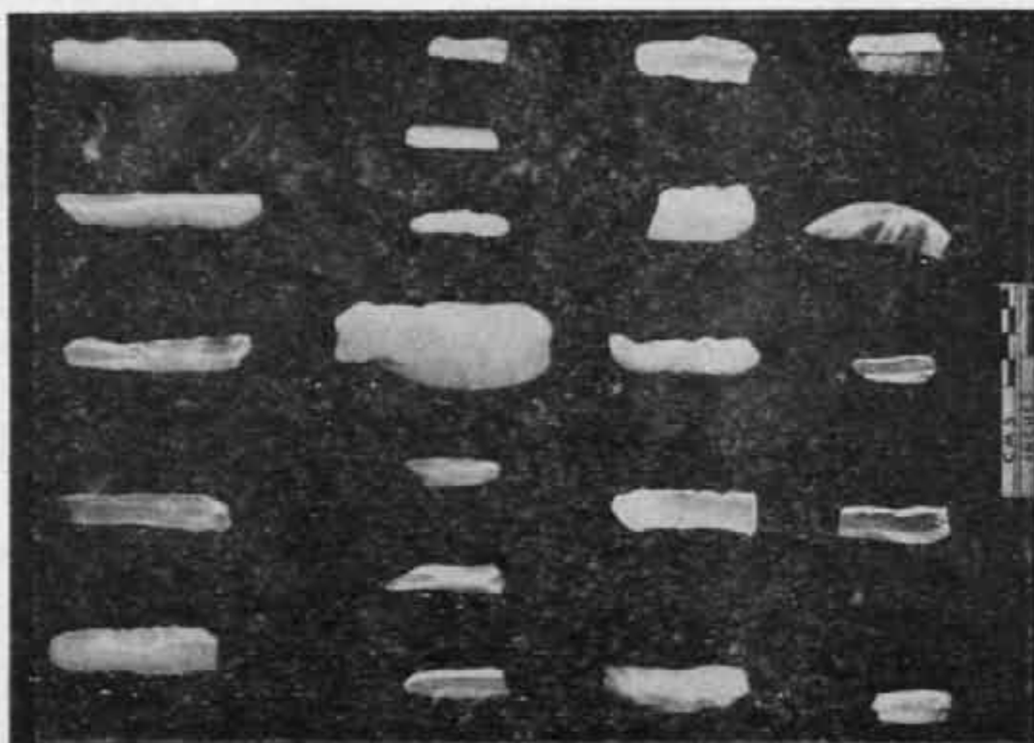


A

Adamgarh: microliths, A, *cores, and* B, *tools. See p.* 13



Eran: remains of three Periods. *See p.* 17

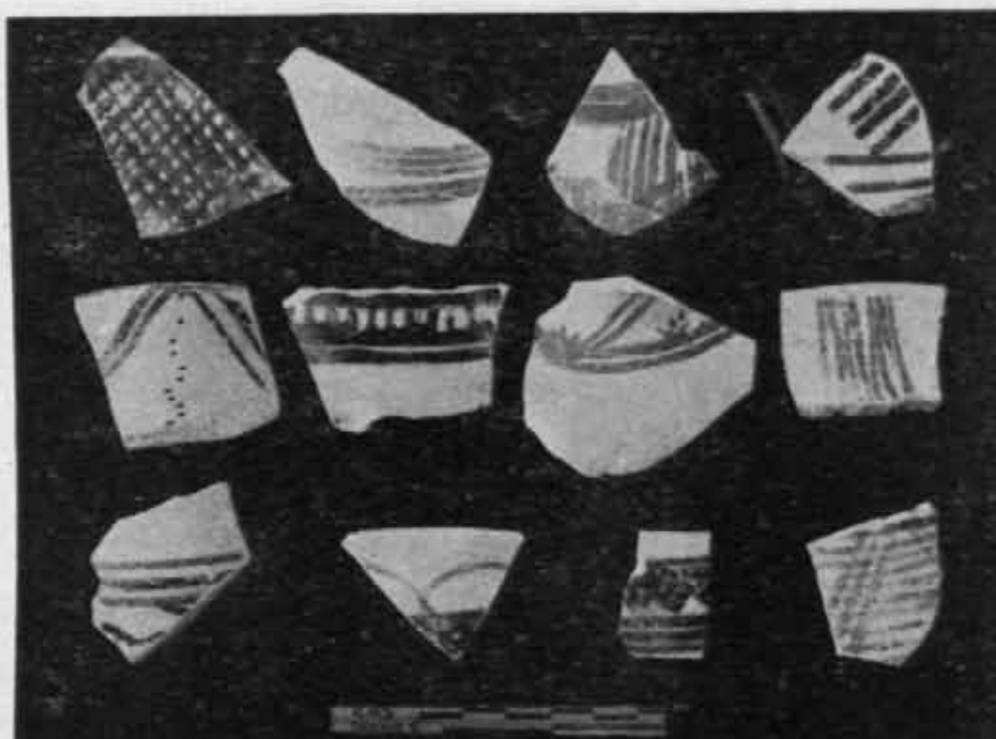


B



A

Eran: A, *circular fire-pits;* B, *microliths.* *See p.* 17

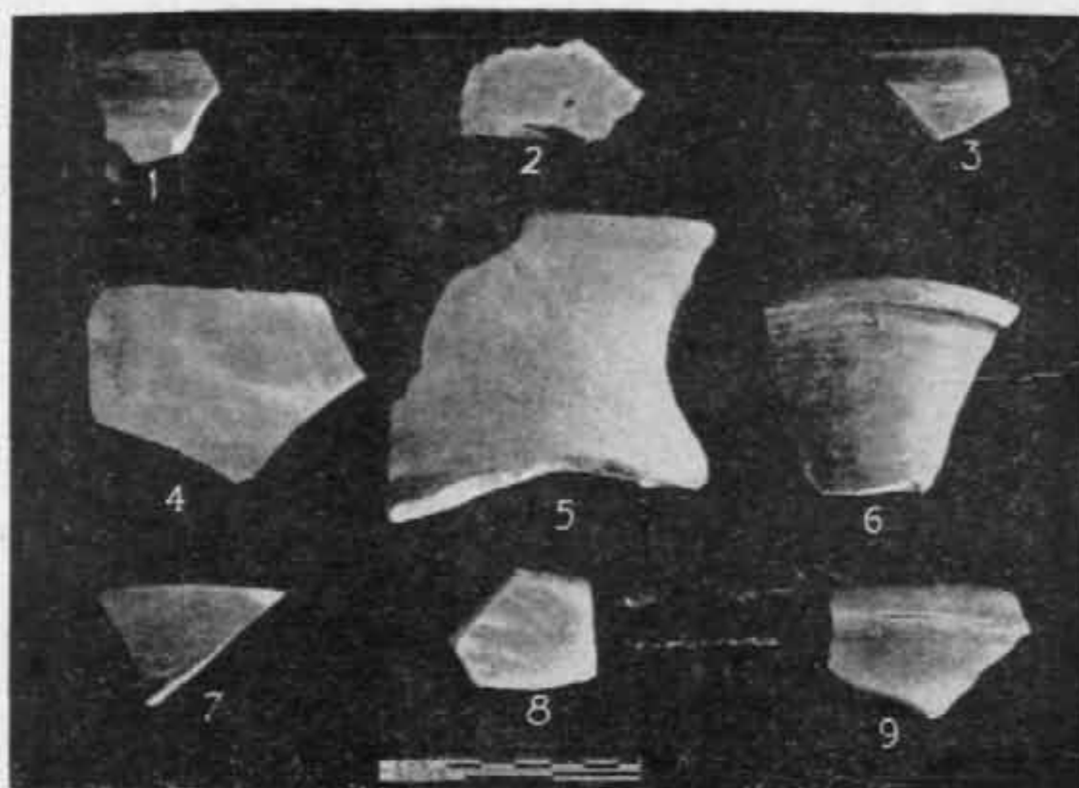


A

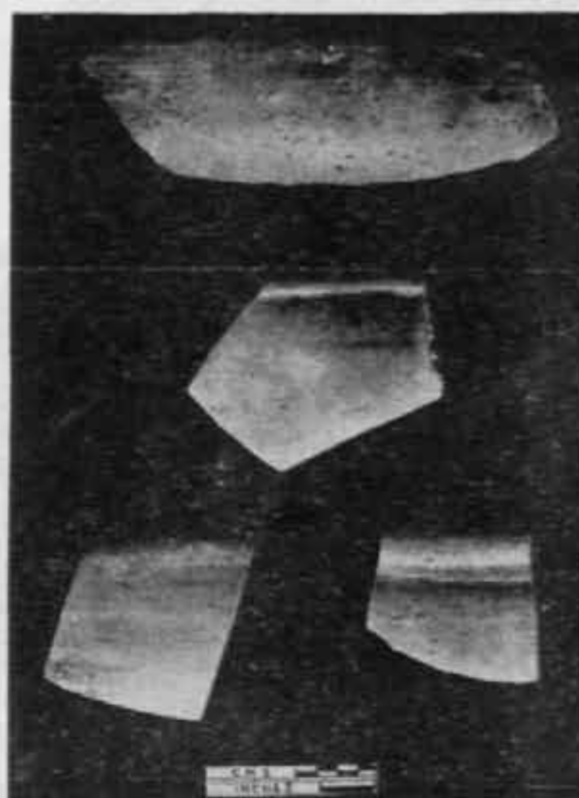


B

Eran: painted pottery, Period I. See p. 17

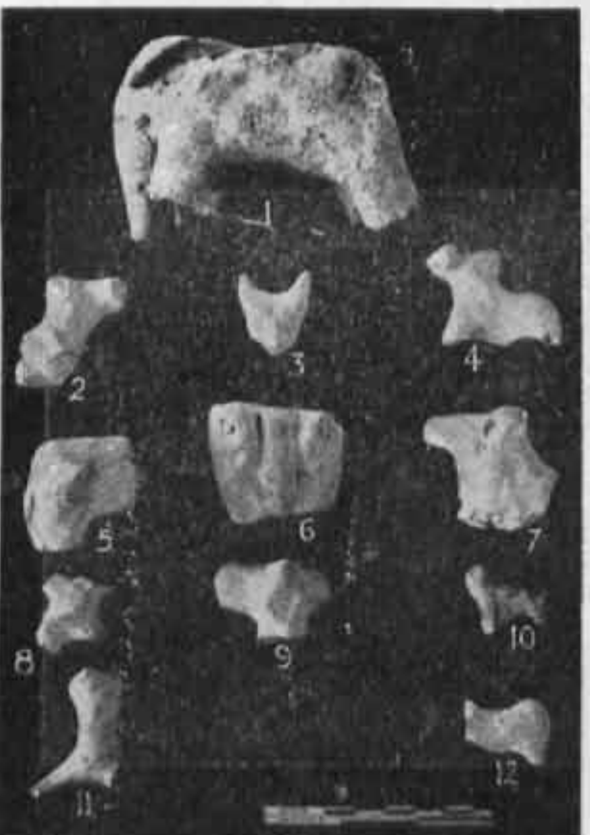


A



B

Eran: pottery. A, *Period I,* 1, 3, 7 *and* 9, *black-and-red ware;* 2, 4, 5 *and* 8, *thick grey ware;* 6, *red ware.* B, *Period II, black-and red ware. See pp.* 17 *and* 18

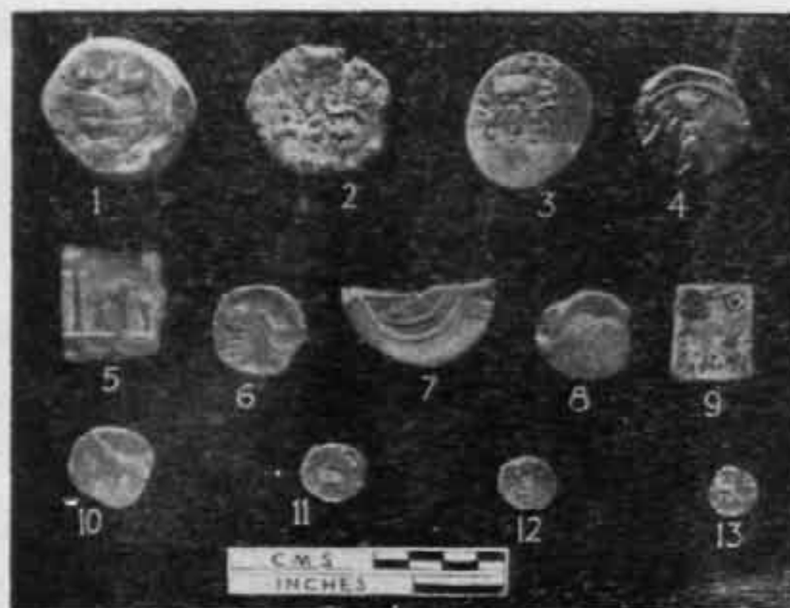


A



B

Eran: A, *terracotta figurines*. 5, 8, 11 *and* 12, *Period I*: 2, *Period II*; 6, 7, 9 *and* 10, *Period III*; 1 *and* 3, *Period IV and* 4 *unstratified*; B, *lead piece with die-impression*. *See pp.* 17 *and* 18

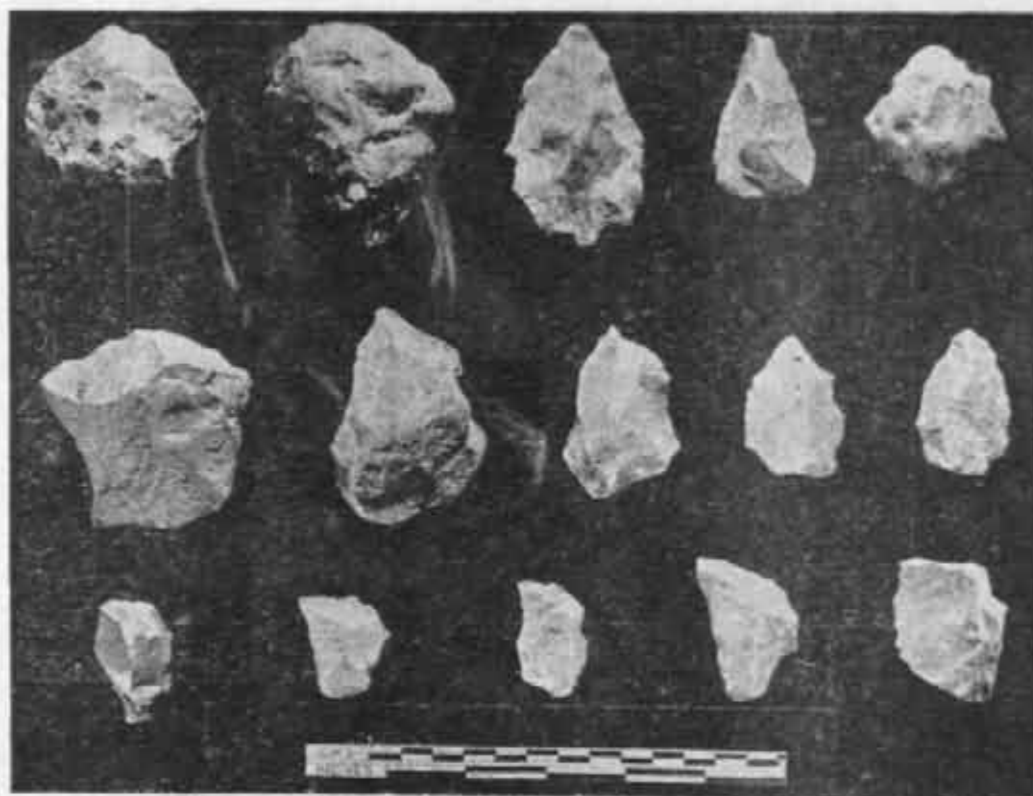


A

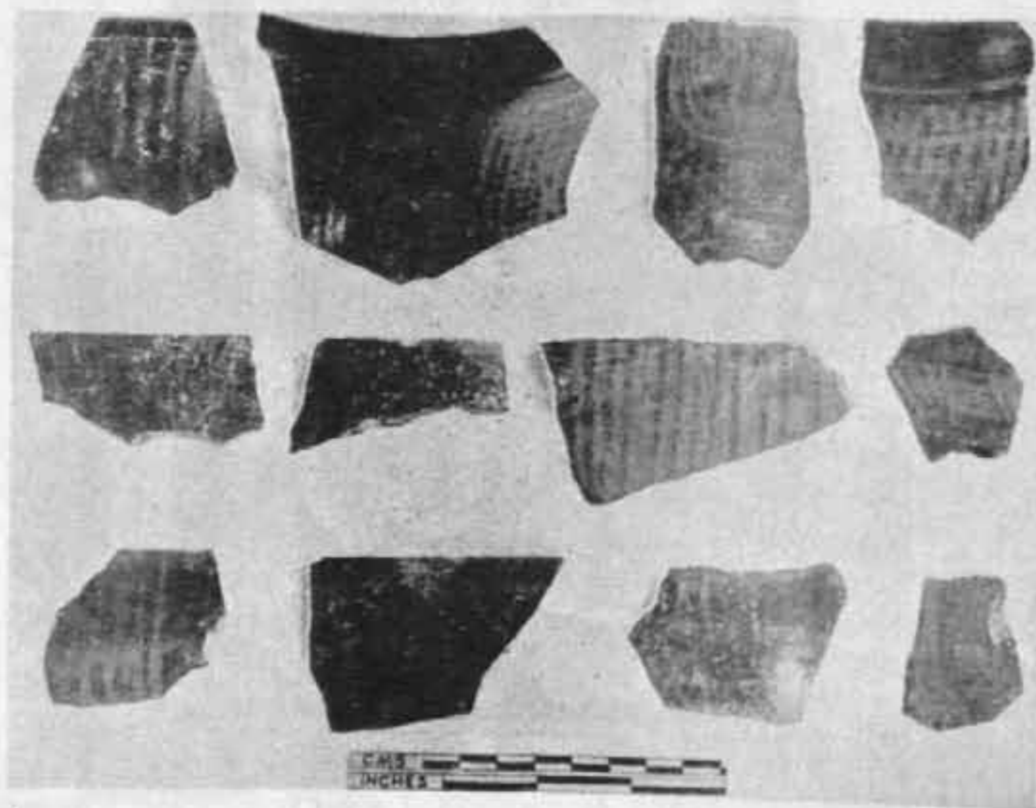


B

Eran: A, *coins and seal*, 2 *and* 3, *Indo-Sassasian;* 5, 6 *and* 8, *cast tribal;* 7, *terracotta W. Ks'atrapa seal;* 11 *and* 13, *naga;* 10, *Ramagupta* (*surface*); 12, *Ramagupta;* 1 *and* 4, *Bhopal and Gwalior;* 9, *silver punch-marked;* B, *iron objects, Period III. See. p.* 18



A

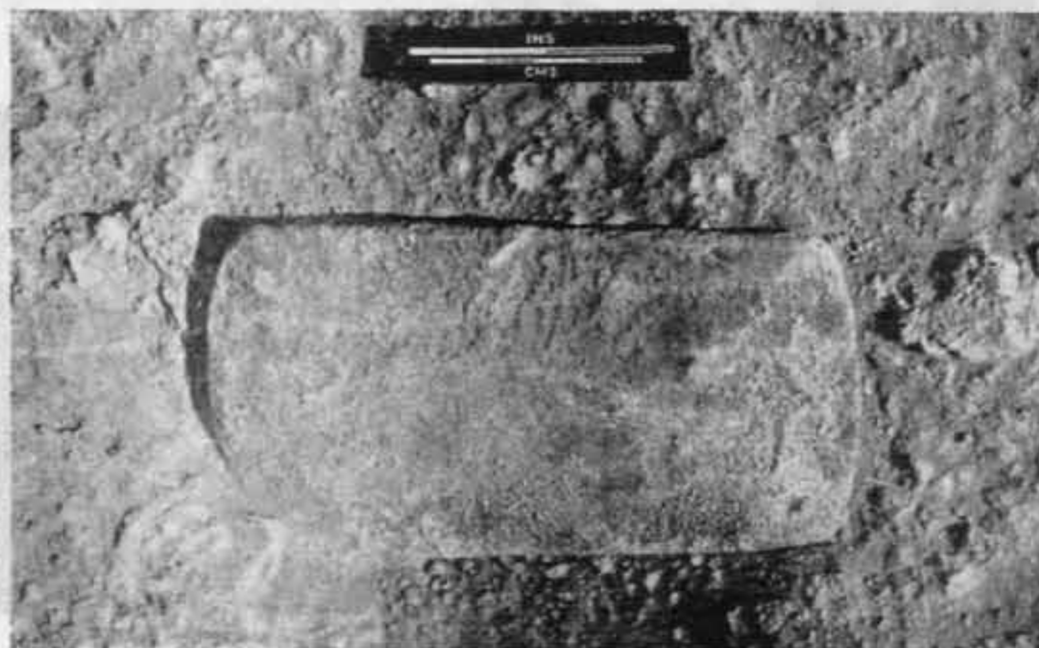


B

A, *T. Puduppatti: tools of* ***Series II;*** **B**, *T. Kallupatti: painted pottery.* *See p.* 18



A



B

Nevasa: A, pair of human skeletons; B, copper celt. *See p. 20*



A

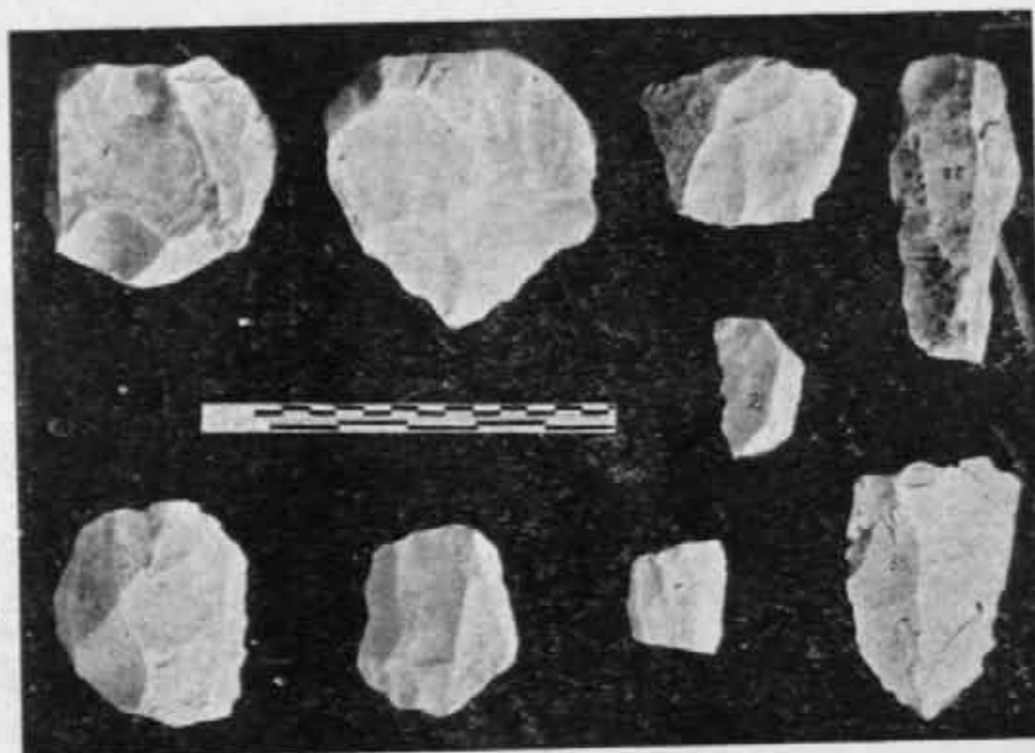


B

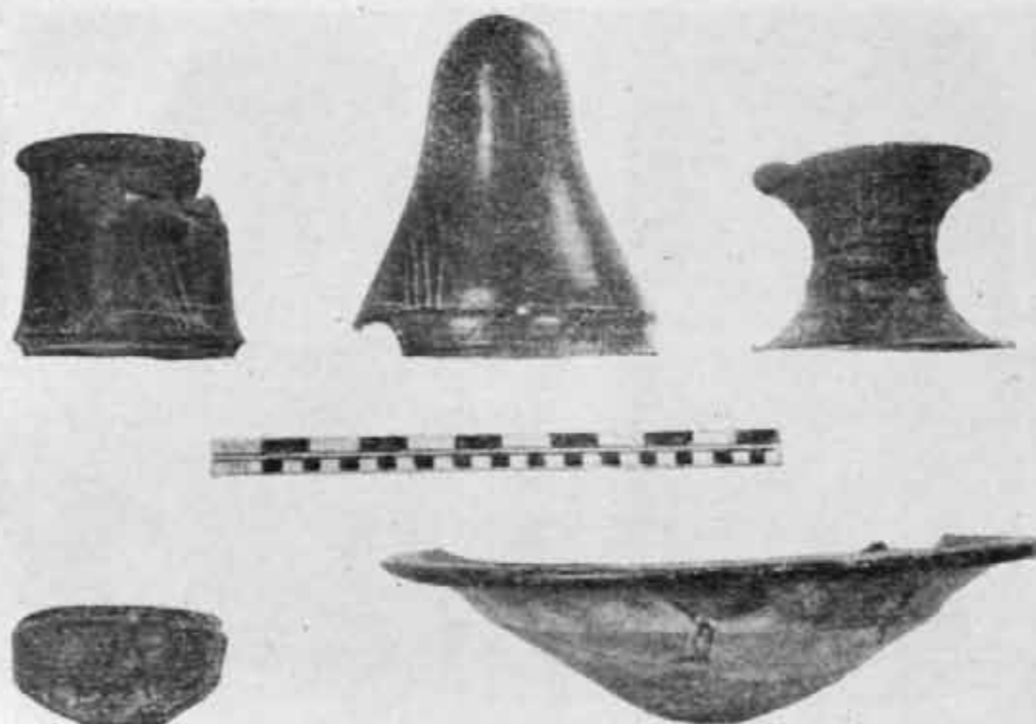


C

Nevasa: A, *terracotta makara-amulet;* B, *terracotta chaitya;* C, *stone plaque.* *See p.* 21

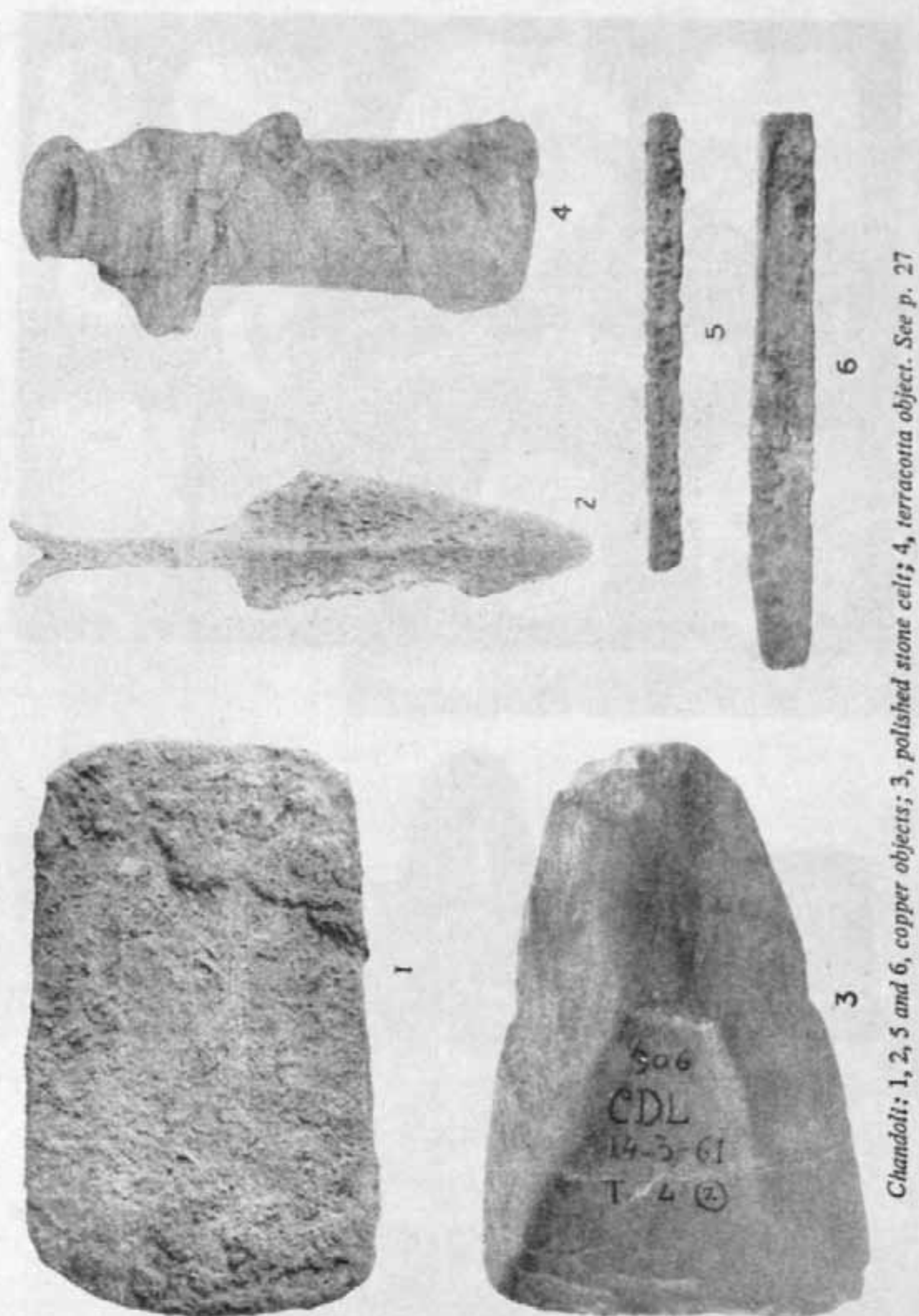


A



B

A, *Vadjakha.i and Umajacha-pada: tools of Series II;* B, *Ranjala : Black-and-red ware with graffit marks.* *See p.* 26



Chandoli: 1, 2, 5 *and* 6, *copper objects;* 3, *polished stone celt;* 4, *terracotta object.* *See p.* 27



A



B

Ratnagiri: A, Temples 1 and 2; B, Temple 3. (Scales of feet.) See p. 29



A



B

Ratnagiri : A, *Temples* 4 *to* 6 *with a large number of stupas;* B, *Temple* 4. (*Scales of feet.*) *See p.* 29



A



B



C



D

Ratnagiri: A, *Vajraraga-Manjusri*; B, *Vajradharma-Lokesvara*; C, *female figure*; D, *Vajraraga*. *See p.* 29



A



B

Ratnagiri: A, *votive stupa;* B, *general view of votive stupas to the east of Temple* 4. (*Scales of inches and feet.*) *See p.* 30





A B

Ratnagiri A, *Ushnishavijaya* (?) ; B, *Jambhala* (?) *See p.* 30



A



B

Ratnagiri : A, *brick structure with three cells*; B, *reconstructed facade of the shrine of Monastery* 1. (*Scales of feet.*) *See p.* 30



A



B

Kalibangan : A, *general view of the site with the flooded Ghaggar;* B, *mud-brick houses.* *See p.* 31



A



B

Kalibangan: A, *mud-brick wall (scale, each division* 10 *cm.)* : B, *floors with terracotta nodules and charcoal (scale, each division* 5 *cm.)* *See p.* 31



A



B

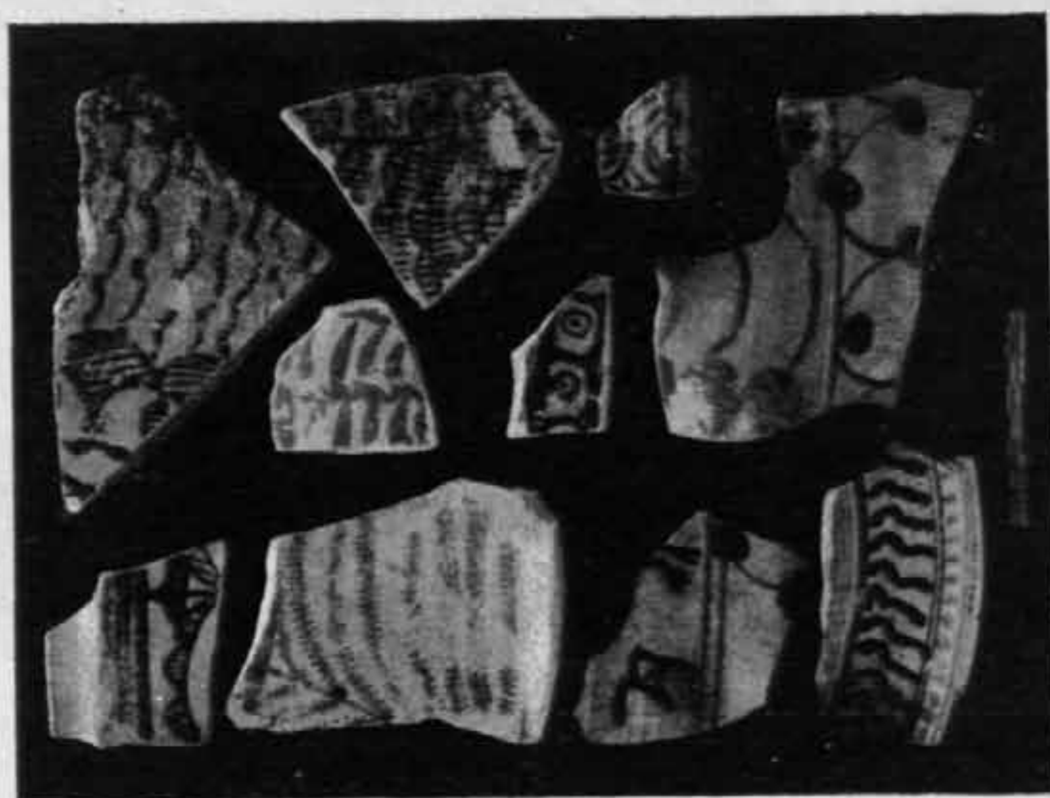
Kalibangan : A, *burnt-brick drain;* B, *soakage-jar.* (*Scales of cms.*) *See p.* 32



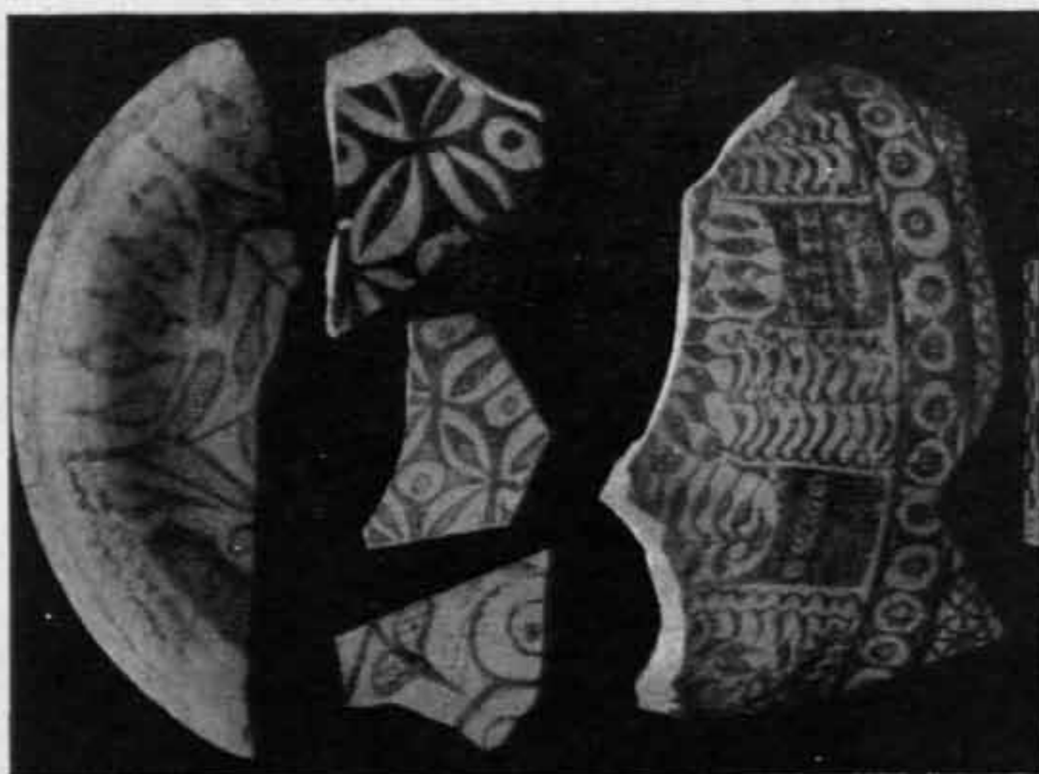


A B

Kalibangan : A, *mud platform with mud-brick facing having mud-plaster (scale, each division* 10 *cm.)*; B, *floor made of terracotta cakes (scale, each division* 5 *cm.)* *See pp.* 31 *and* 32



A



B

Kalibangan : painted pottery. See p. 32



A

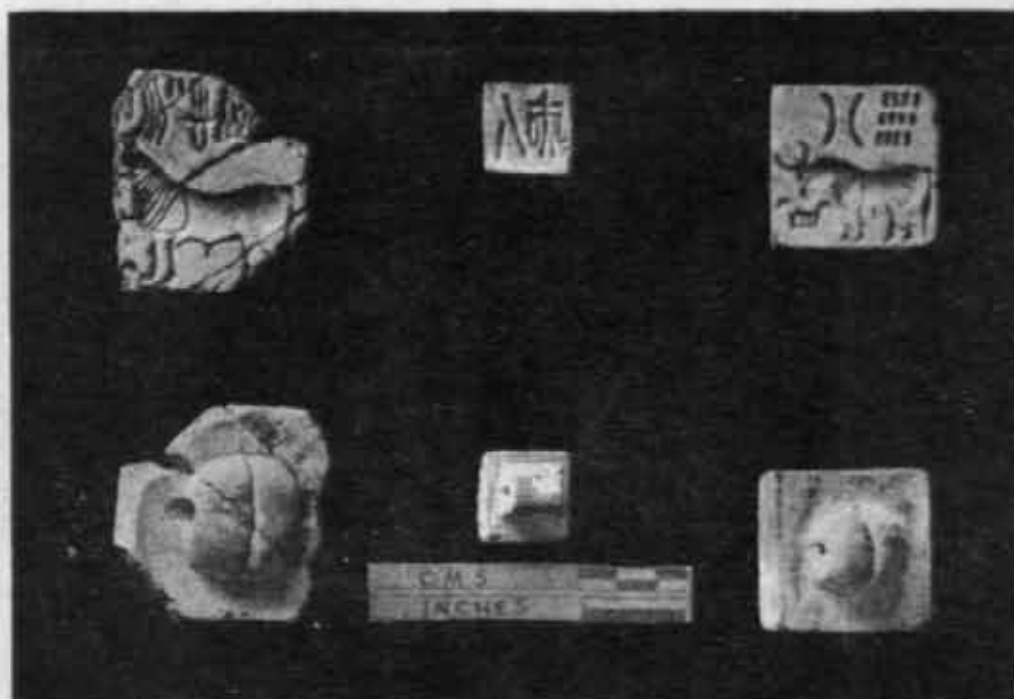


B

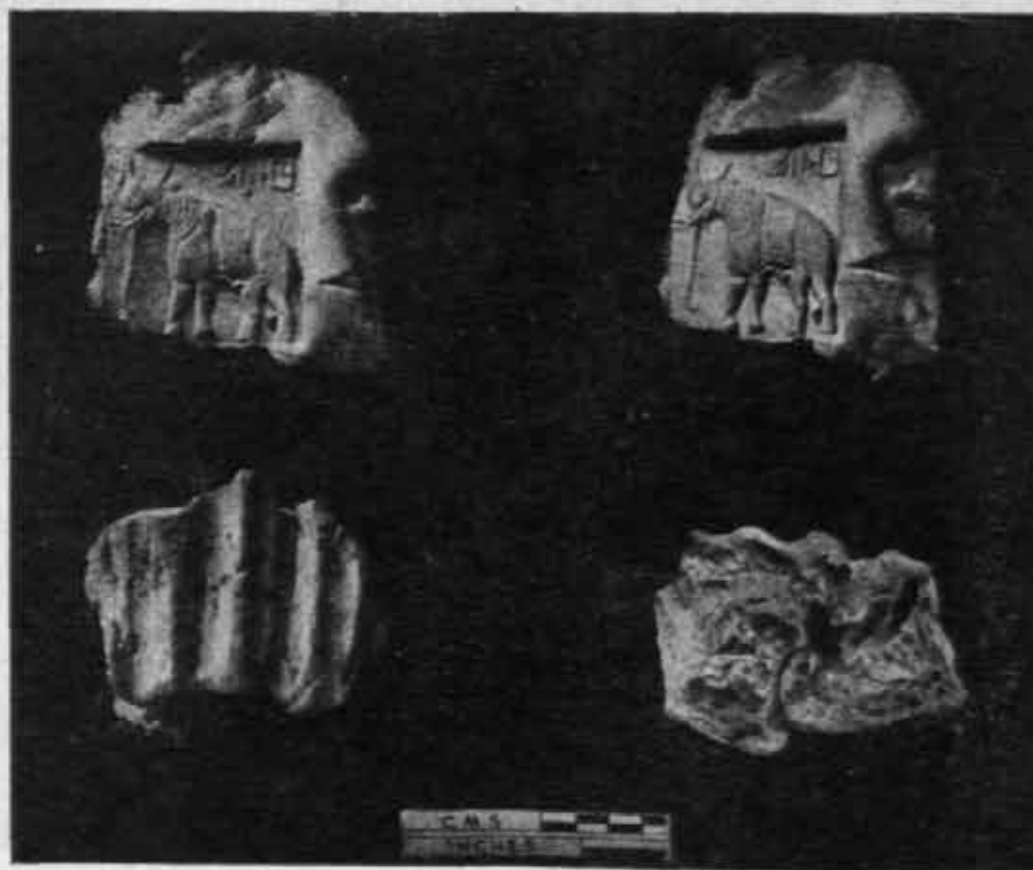
Kalibangan: A, pottery-types; B, painted pottery. *See p. 32*



Kalibangan : painted pottery. See p. 32

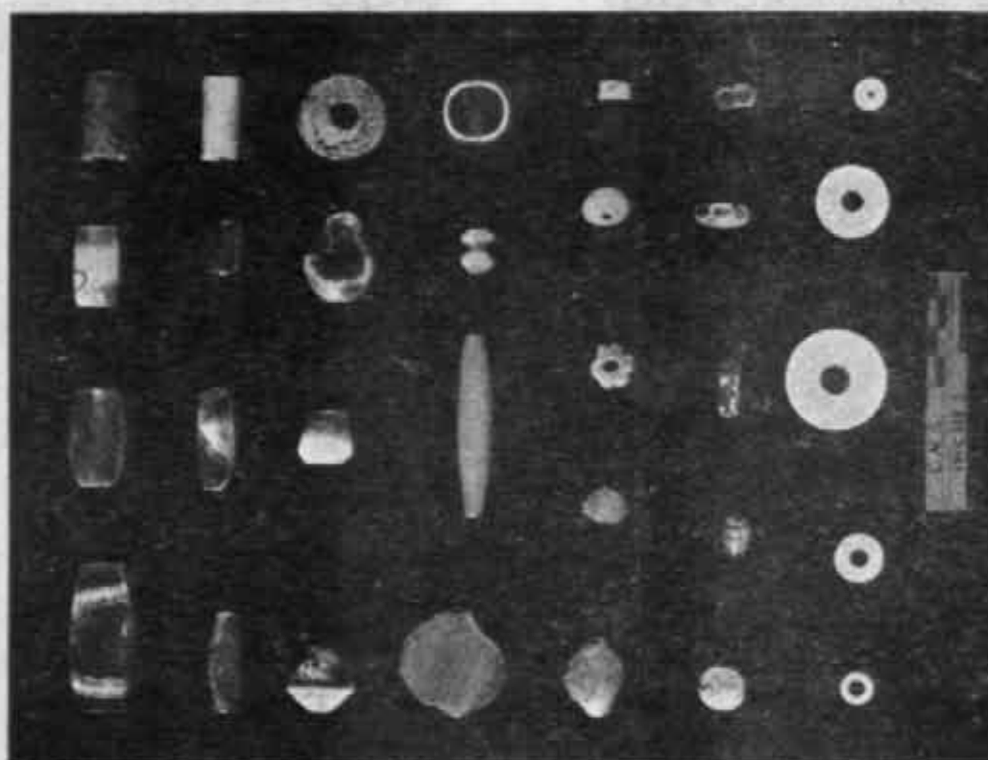


A

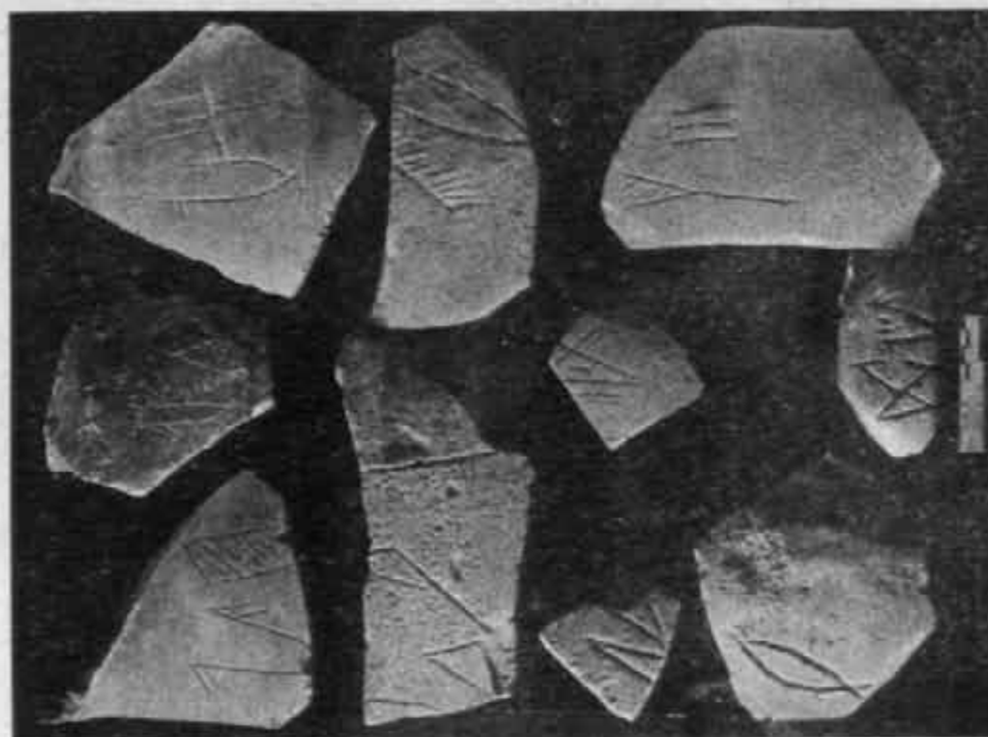


B

Kalibangan: A, *steatite seals with perforated knobs;* B, *terracotta sealings with reed-impression.* *See p.* 32

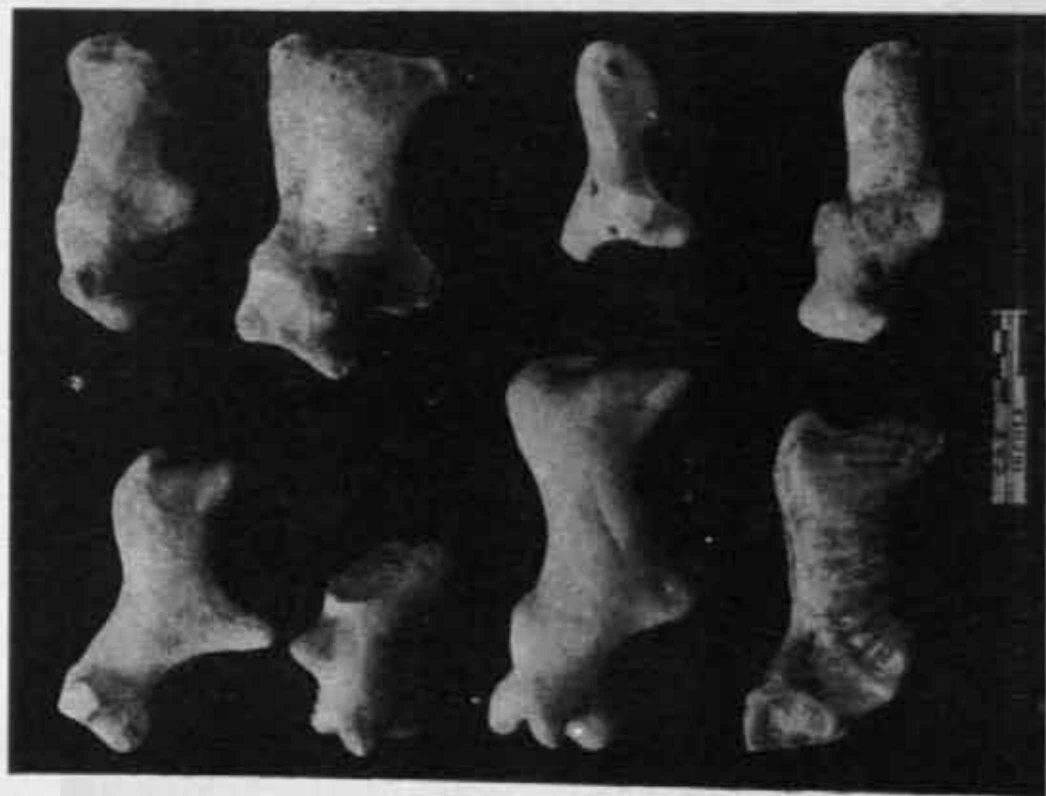


B

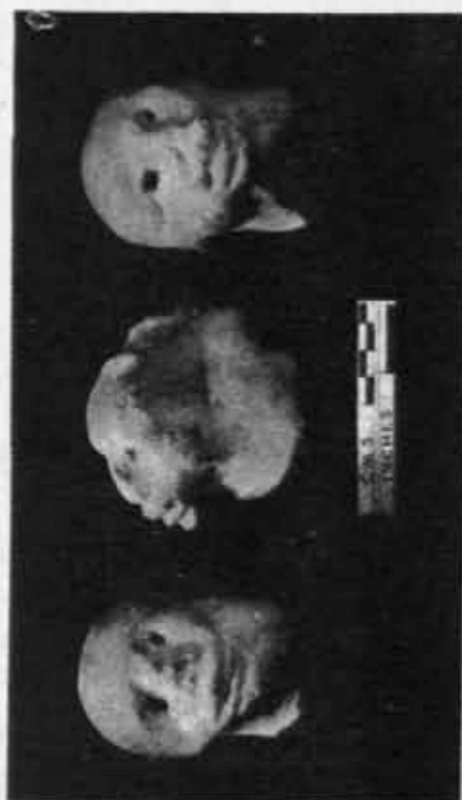


A

Kalibangan: A, *potsherds bearing Harappan script*; B, *beads*. *See p.* 32



A

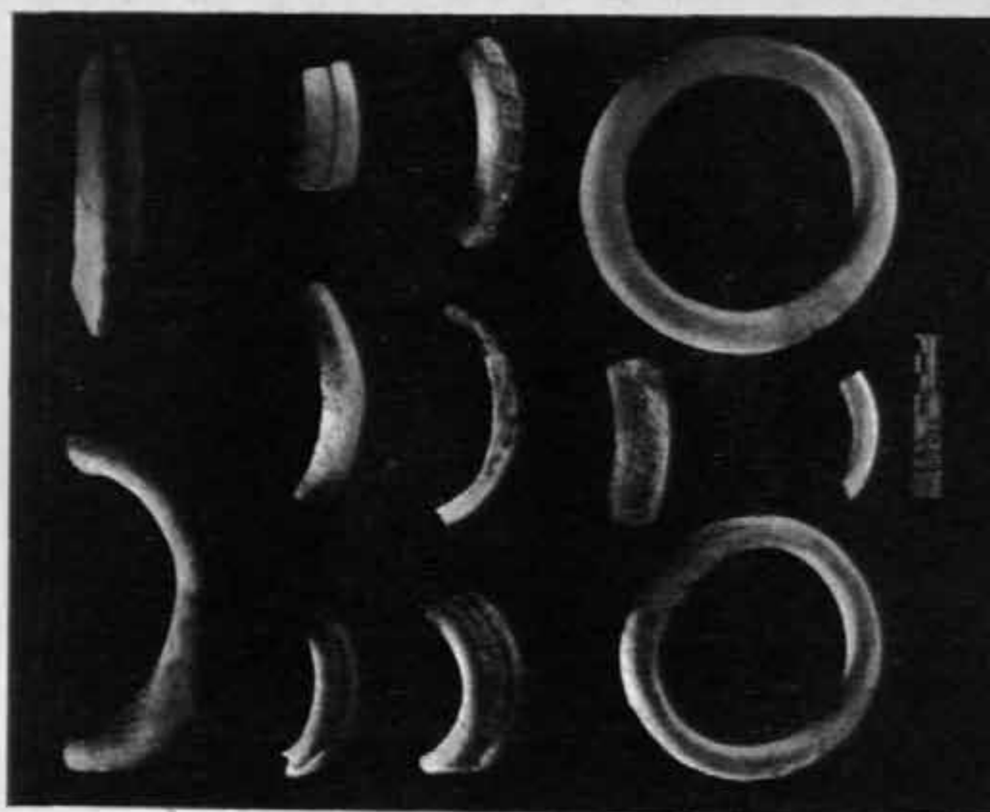


B

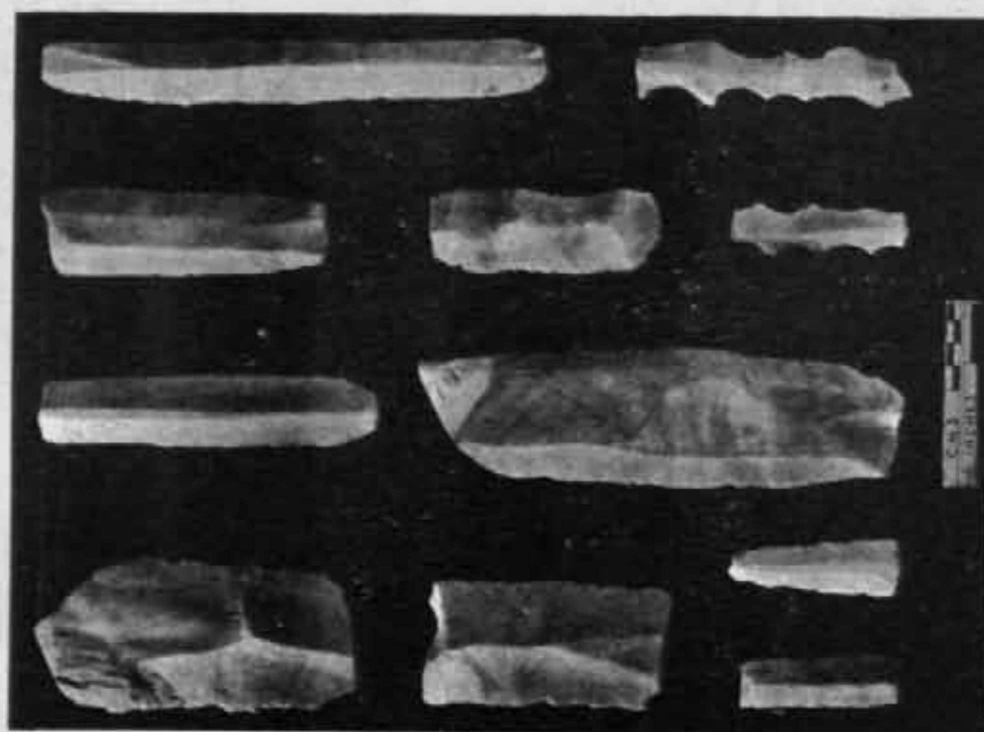


C

Kalibangan: A, *terracotta animal figurines*; B, *terracotta human figurine*; C, *terracotta birds*. *See p.* 32

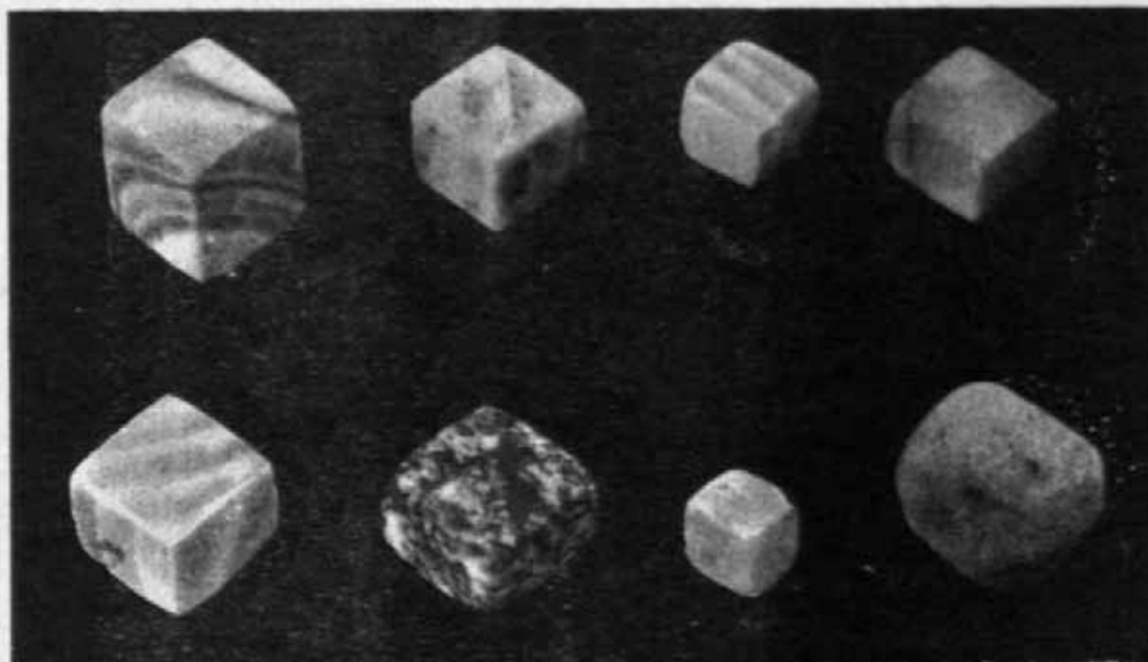


A

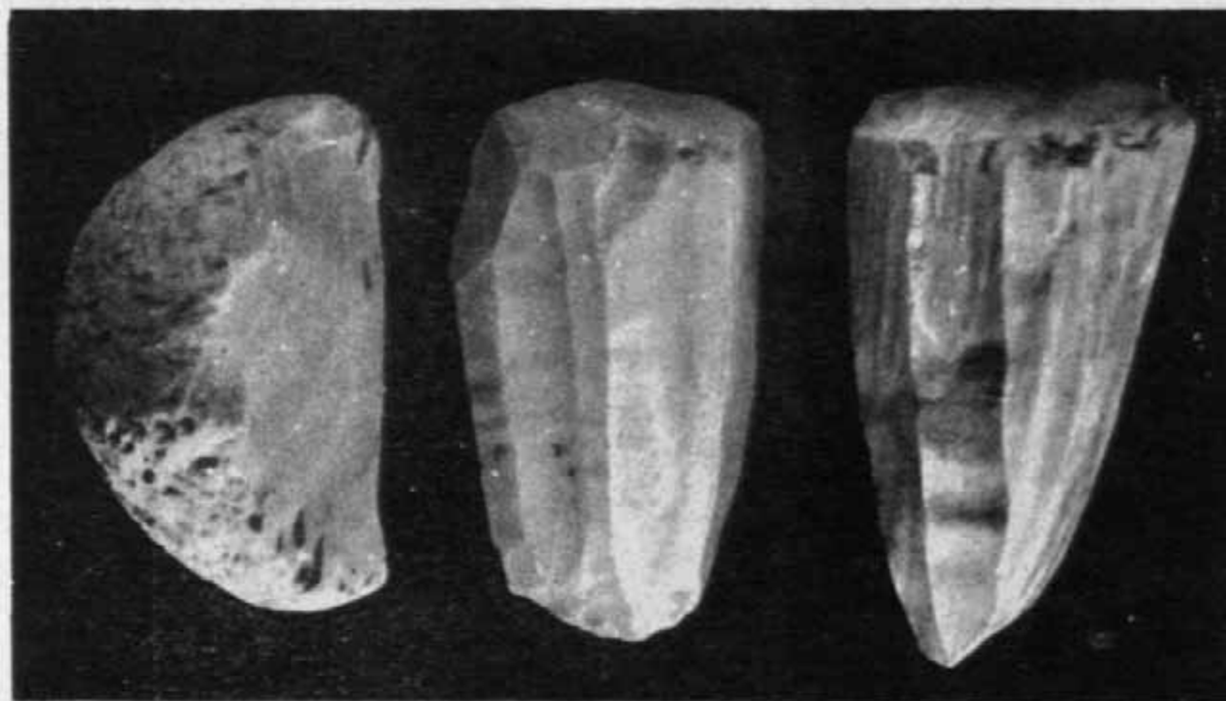


B

Kalibangan: A, *terracotta and faience bangles;* B, *chert blades.* *See p.* 32

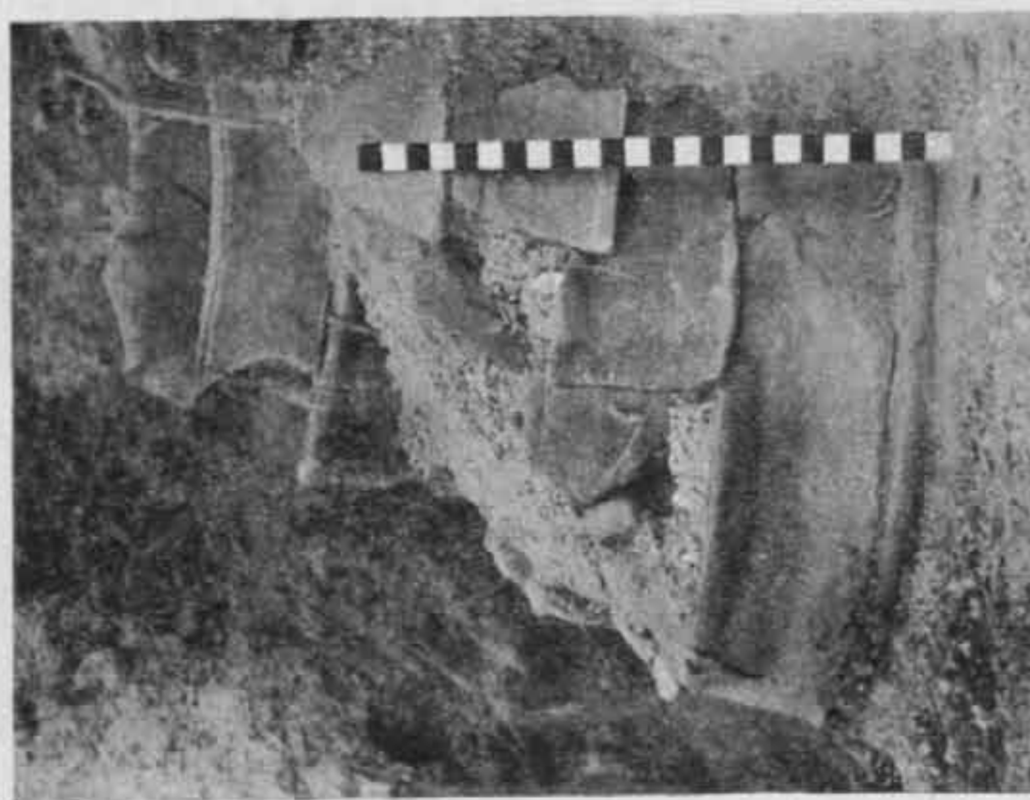


A

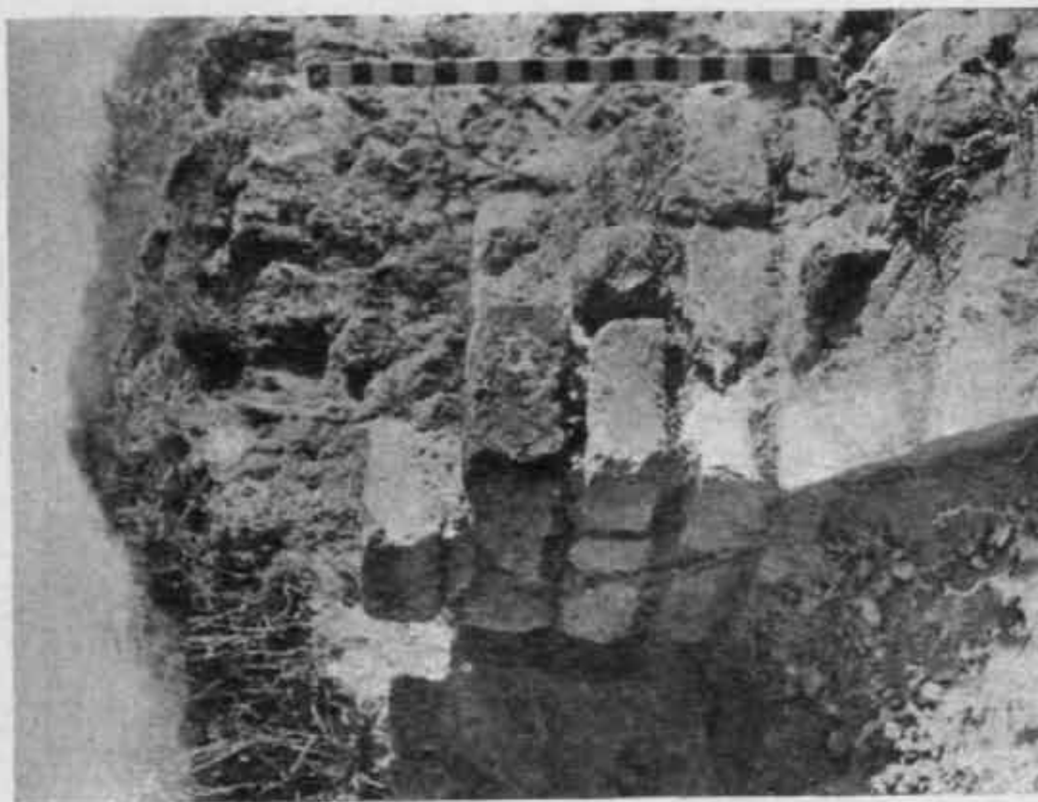


B

Kalibangan: A, chert weights; B, chert cores. See p. 32



A



B

Draupadi-ghat : A, *ring-well* ; B, *burnt-brick wall*. (*Scales of inches.*) *See p.* 33

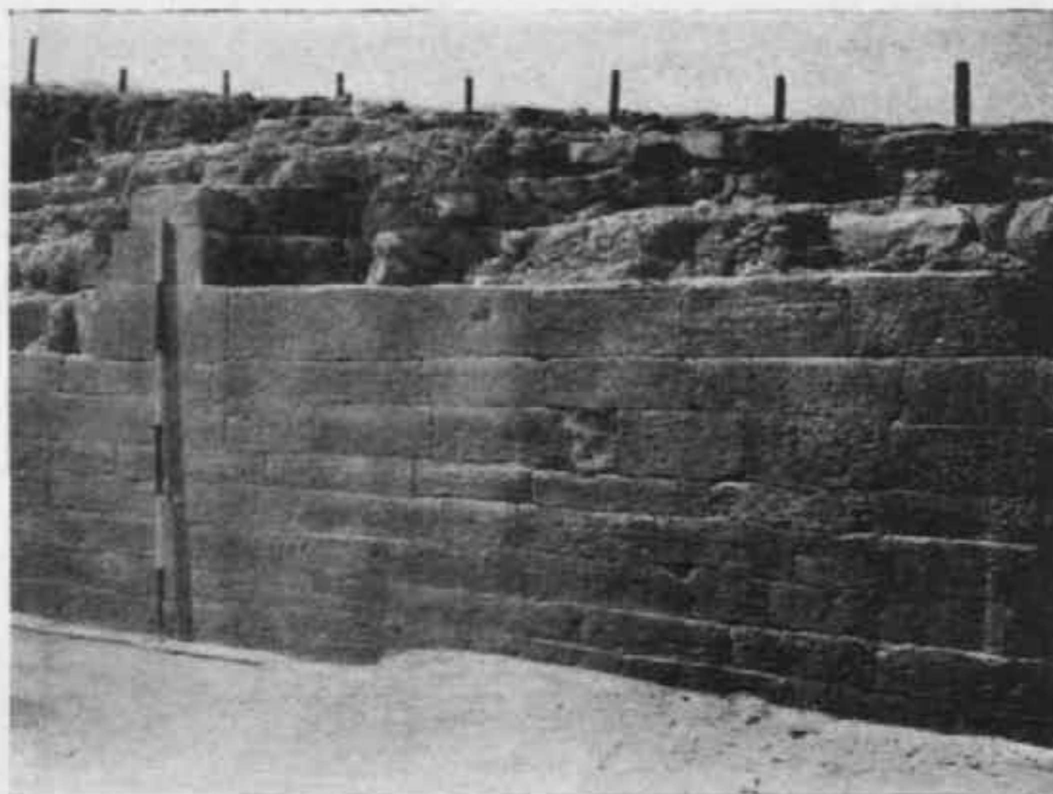


A



B

Kausambi: tower, A, *overlooking the river, and* B, *close up (scale of feet). See p.* 34

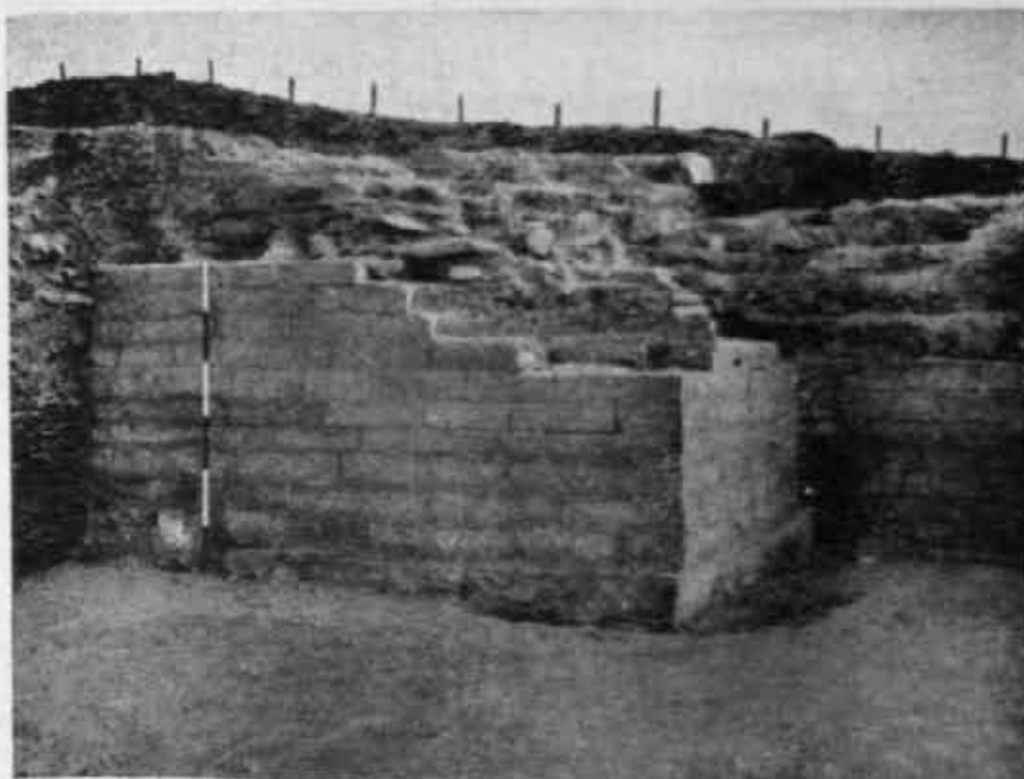


A



B

Kausambi : A, *northern wall*; B, *return-walls.* (*Scales of feet.*) *See p.* 34



A



B

Kauṣambi: A, *oblong tower*; B, *flight of steps leading to the tower*. (*Scales of feet*.) *See p.* 34

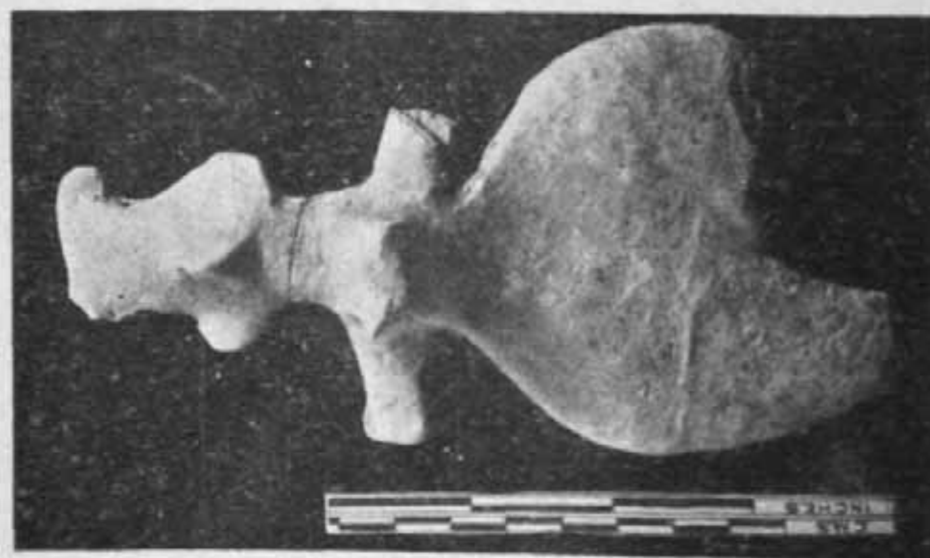


A



B

Kausambi: A, *palace-remains, Phases* I *and II;* B, *north-eastern corner-tower, Phase III.*
(*Scales of feet.*) *See p.* 34



A



B

Kausambi: A, *hand-made archaic mother-goddess of terracotta;* B, *terracotta figurine from the defences.* *See p.* 34



Kausambi: mould-made terracotta plaques. *See p. 34*


A


B


C


D


E


F

Atranjikhera : A, *terracotta head* (*ht.* 11.1 *cm.*); B, *terracotta figurines* (*hts., left* 12.7 *cm. and right* 7 *cm.*); C, *terracotta medallion* (*ht.* 25.4 *cm.*); D, *red sandstone Bhairava* (*ht.* 12 *cm.*); E, *sandstone figure with purna-ghata* (*ht.* 21.5 *cm.*); F, *seated stone deities, Kubera and Hariti* (?) (*ht.* 19.7 *cm.*) *See p.* 35

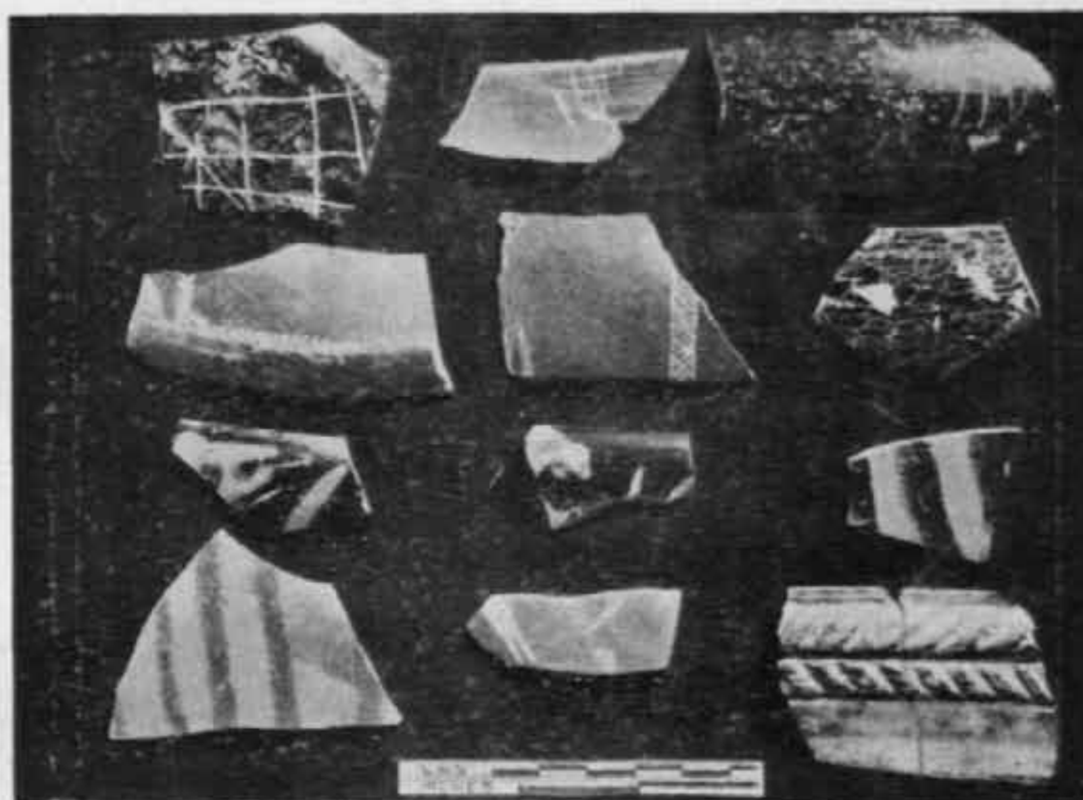


A



B

Rajghat: burnt-brick structures, Period II (scales of feet and inches). See p. 37

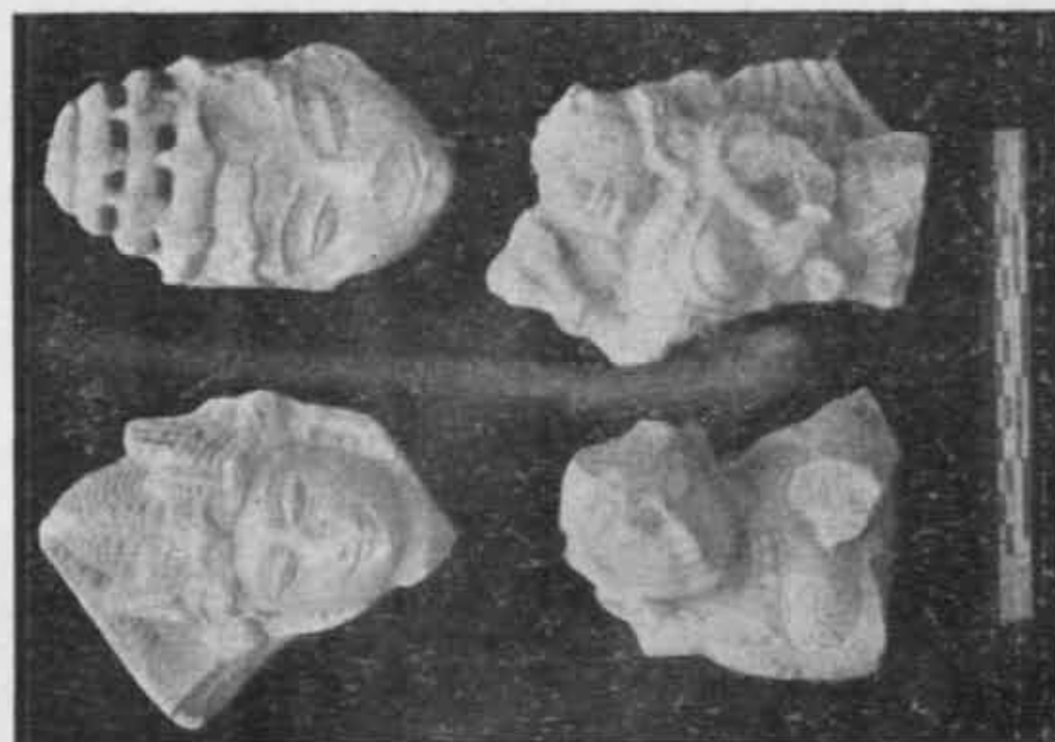


A



B

Rajghat : A, *painted and incised sherds, Period I*; B, *seals, sealings and a coin.* *See p.* 37



B

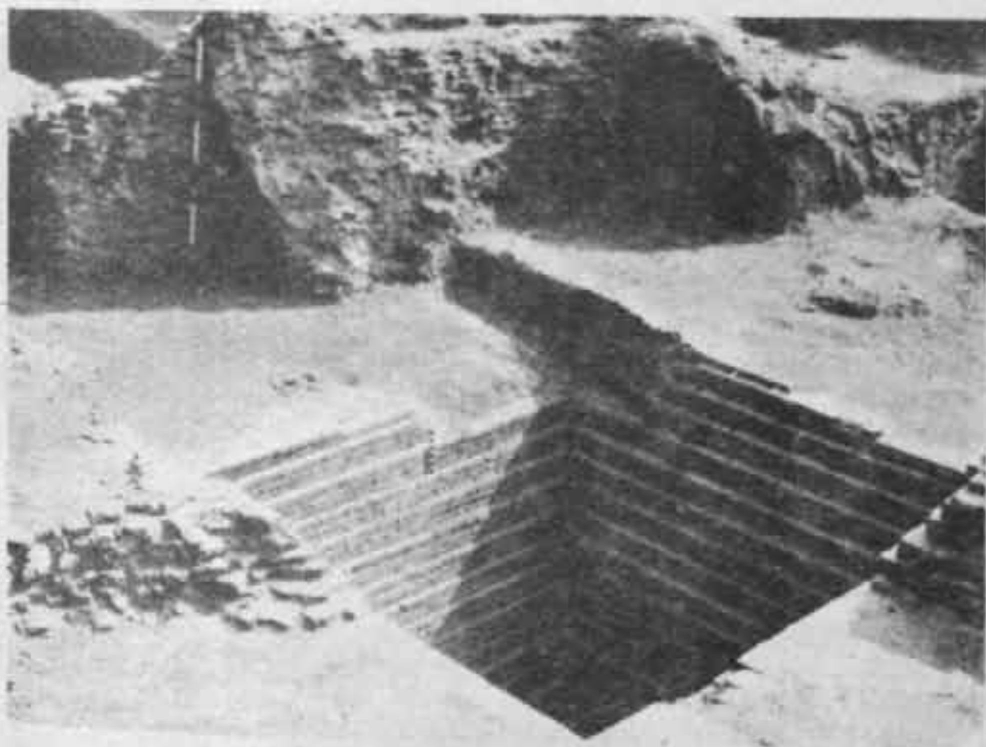


A

Rajghat : A, *terracotta human figurines, Period IV;* B, *stone sculptures, Period V.* *See p.* 39



A

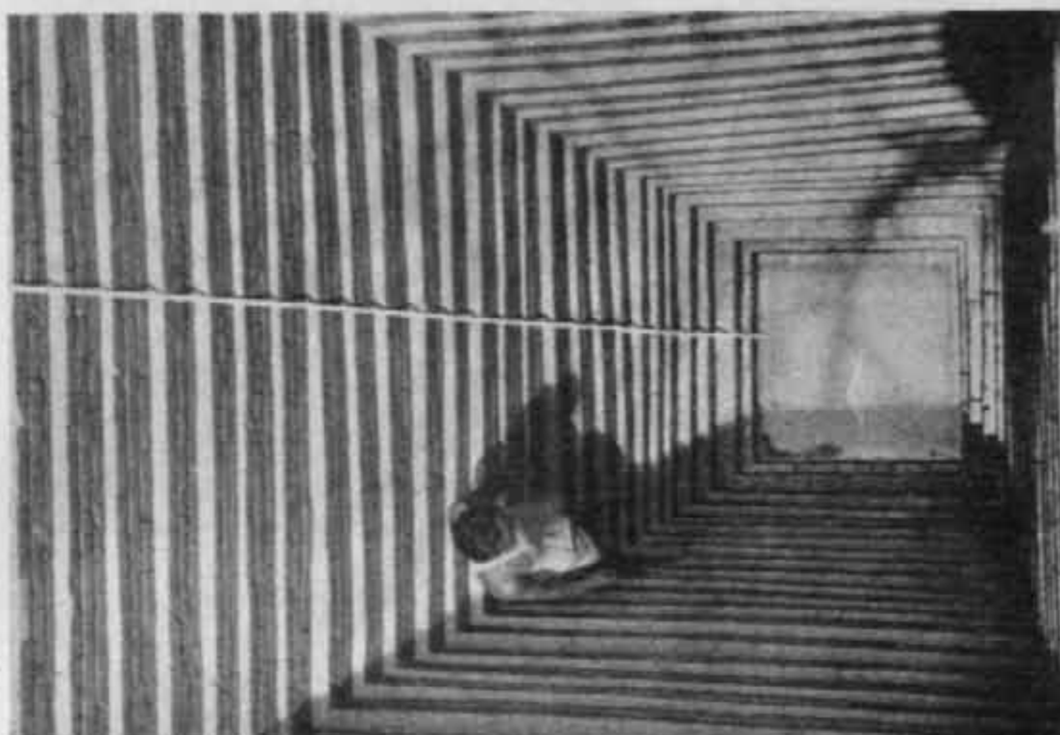


B

Chandraketugarh: A, *shrine of temple;* B, *central pit of the temple after removal of superstructures (scale of inches and feet). See p.* 39

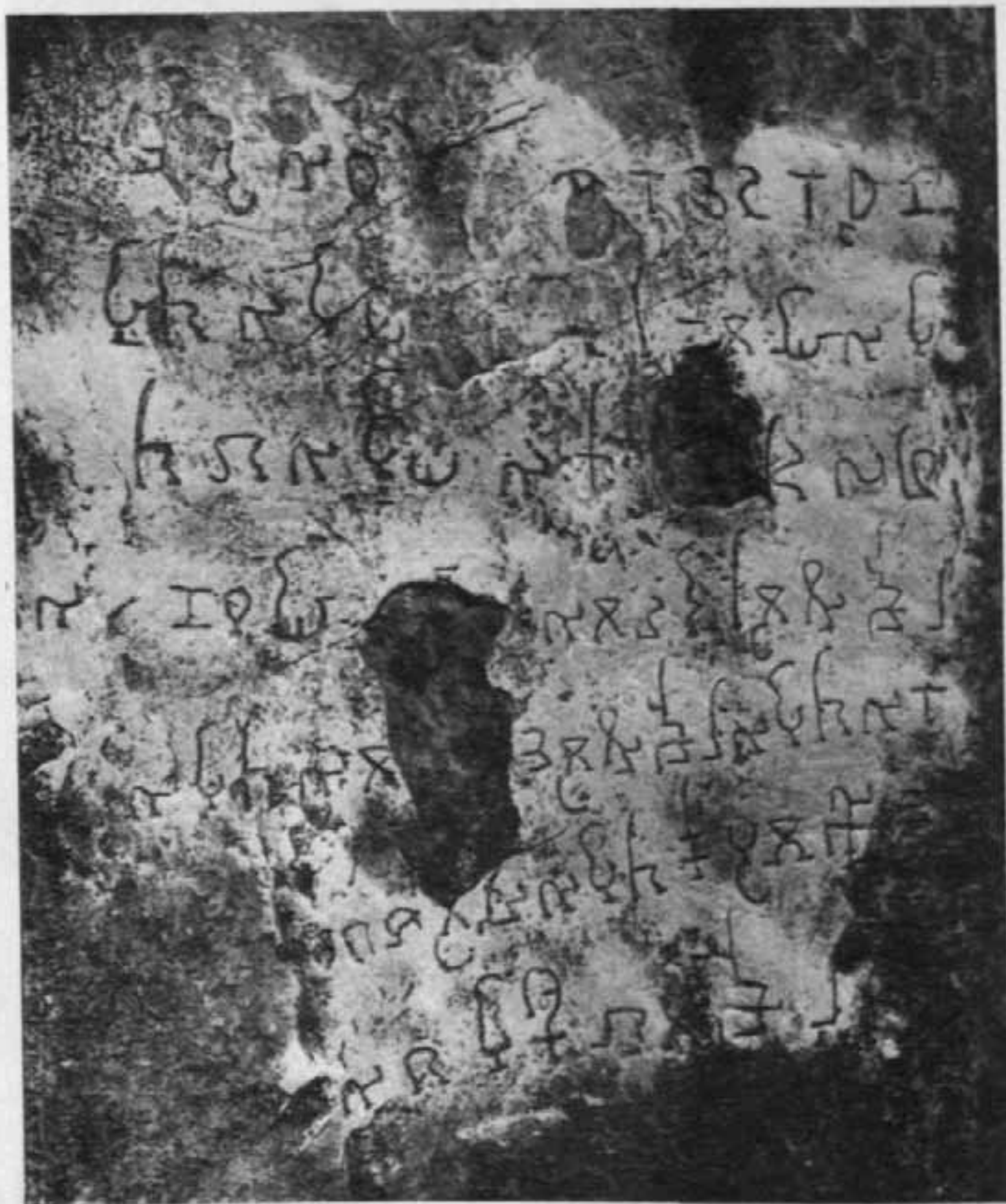


B

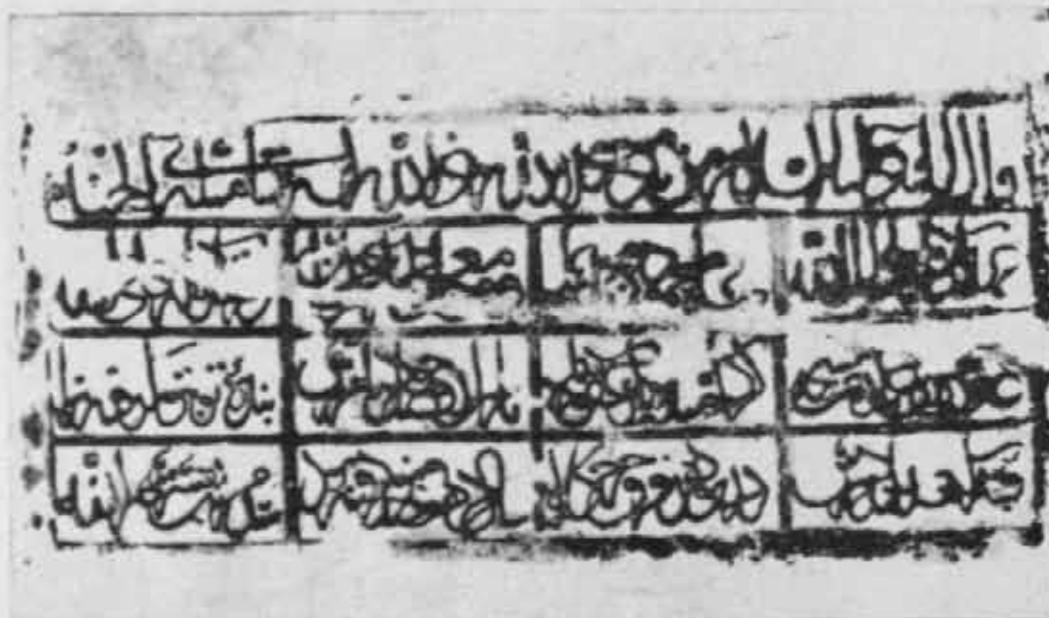


A

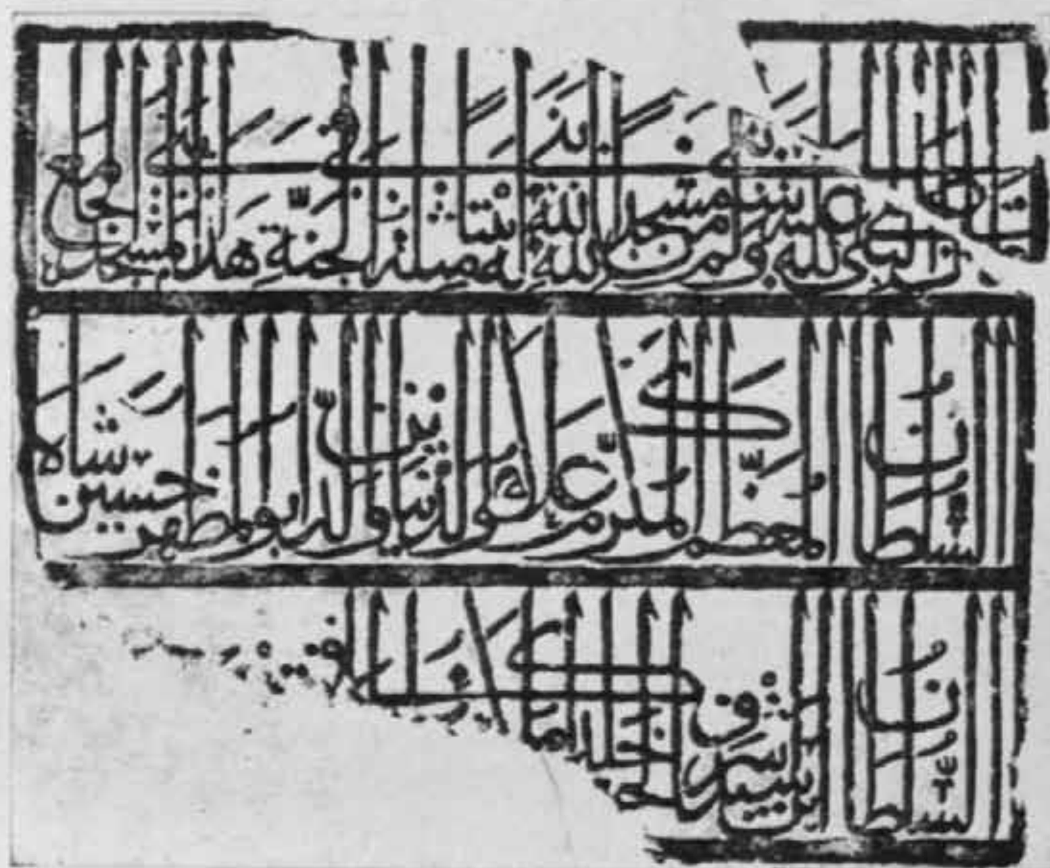
Chandraketugarh: A, *central pit of the temple with offsets and paved floor;* B, *brick structure with mouldings and offsets, Period IV, superimposed by structure of Period V (scale of inches).* *See pp.* 39 *and* 40



Khavada: stone inscription of Rudradaman (ht. 4.7 metres.) *See p.* 44



A



B

A, Kako: inscription of Mahmud Shah Tughluq (l. 66 cm.); B, Narhan: inscription of 'Alau'd-Din Husain Shah of Bengal (l. 61 cm.) See p. 50

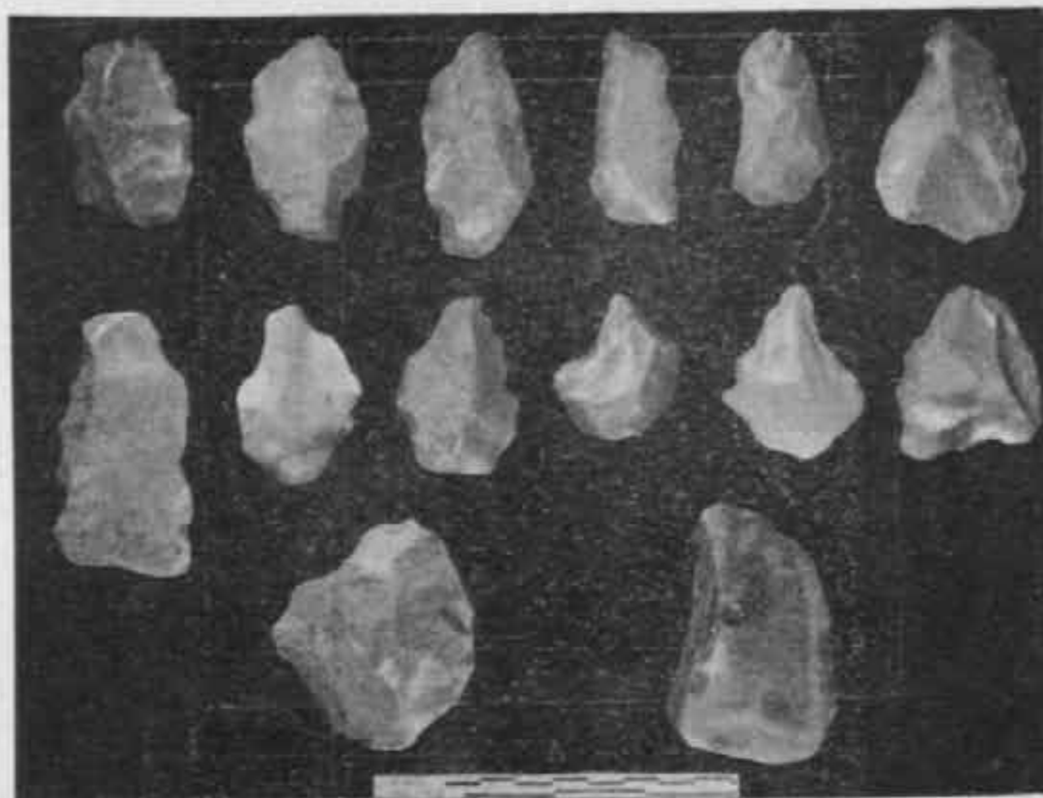


A

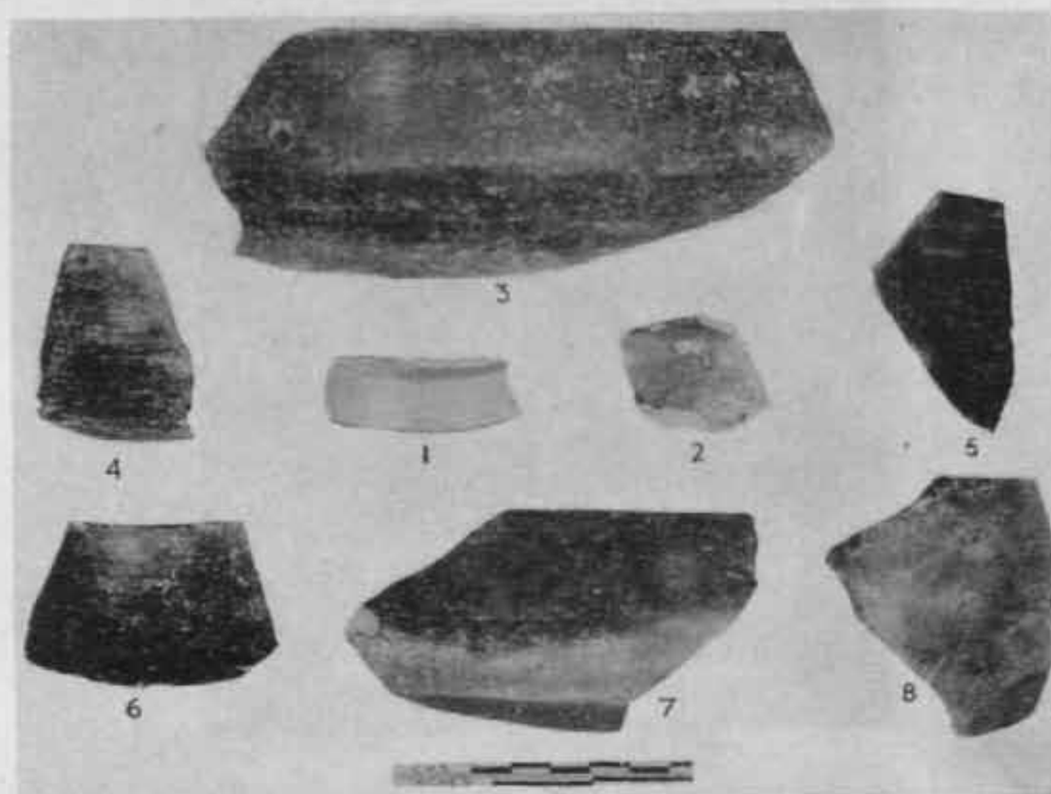


B

A, *Devnimori: bronze figure of Atlantes;* B, *Lavan: carvings on Siva temple.* *See pp.* 58 *and* 59



A

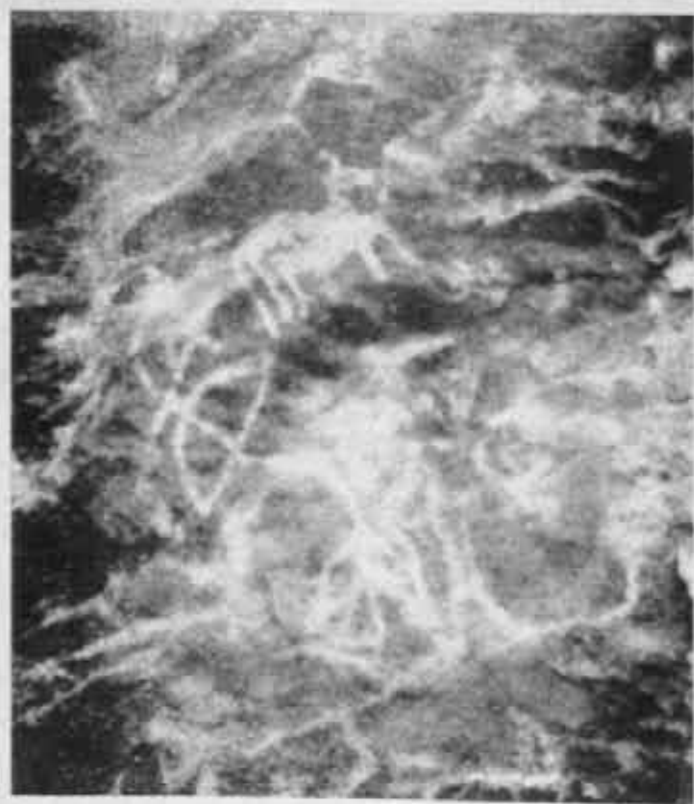


B

A, *Districts Nimar East, Jabalpur, Nagpur and Sagar: tools of Series II;* B, *Burhanpur:* 1, *thin grey ware;* 2, *Northern Black Polished Ware, and* 3-8, *black-and-red ware. See pp.* 60, 61 *and* 62



A



B

Bijori : paintings in rock-shelter. *See p.* 60

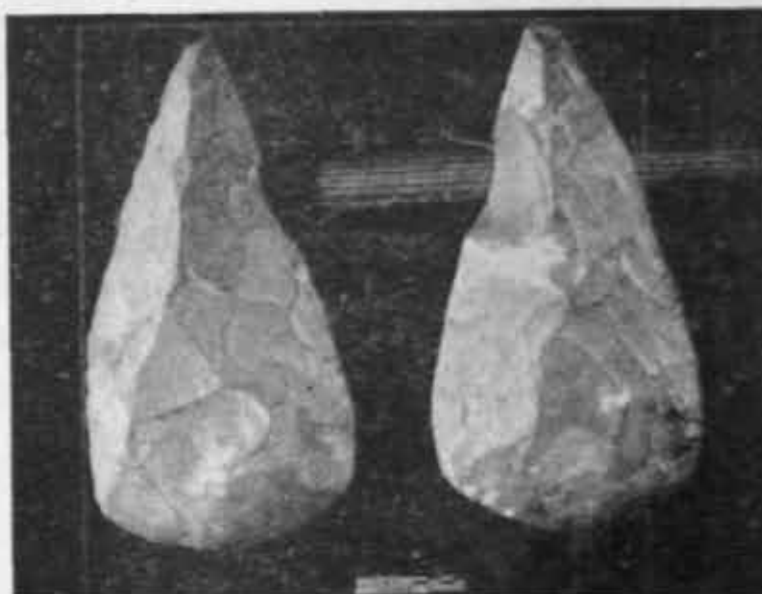


A

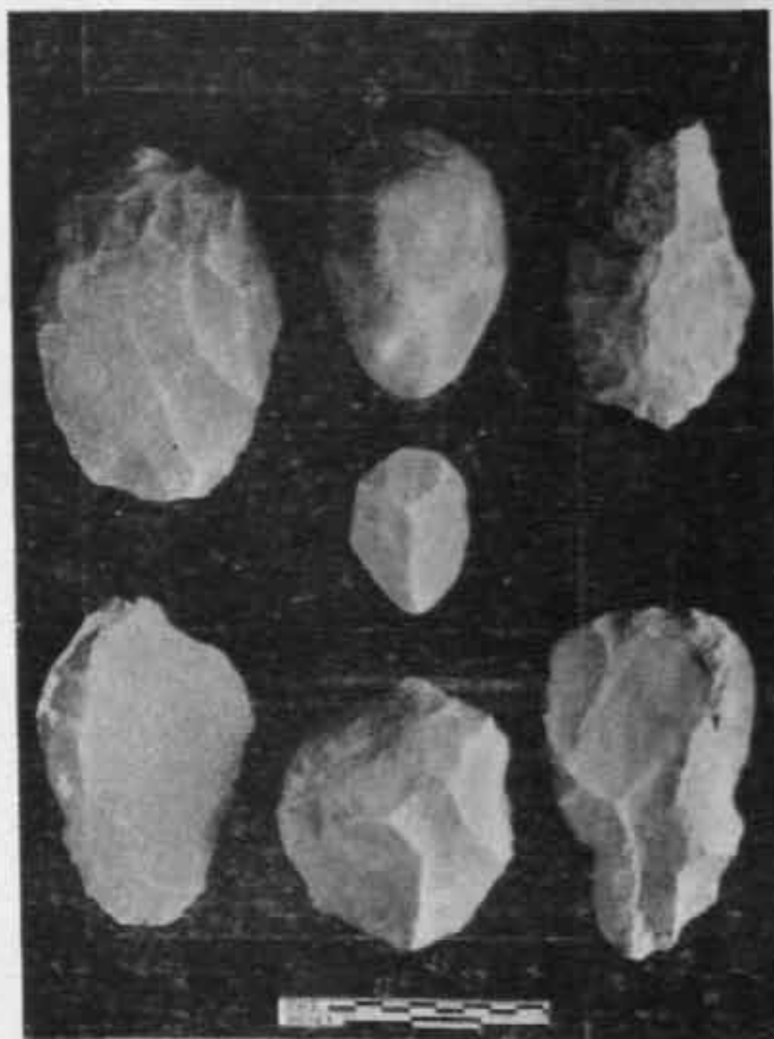


B

A, *Eran: stone Gaja-Lakshmi (ht.48.3 cm.)*; B, *Jasso: four-headed Siva in stone. (ht. 55.9 cm.)* *See p. 62*



A



B

A, *Eran: neolith;* B, *Bhapson: palaeoliths. See p.* 62

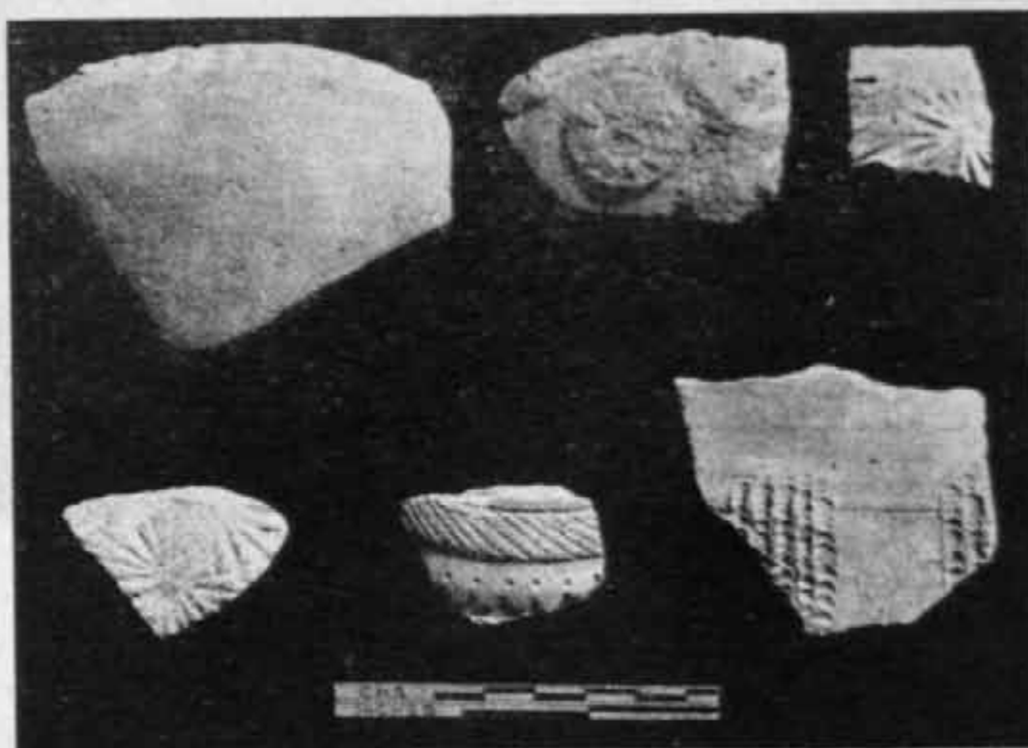


A



B

A, *Mohendra: nagi holding a child;* B, *Karuttittangudi: Ardhanarisvara. See pp.* 61 *and* 63



A



B

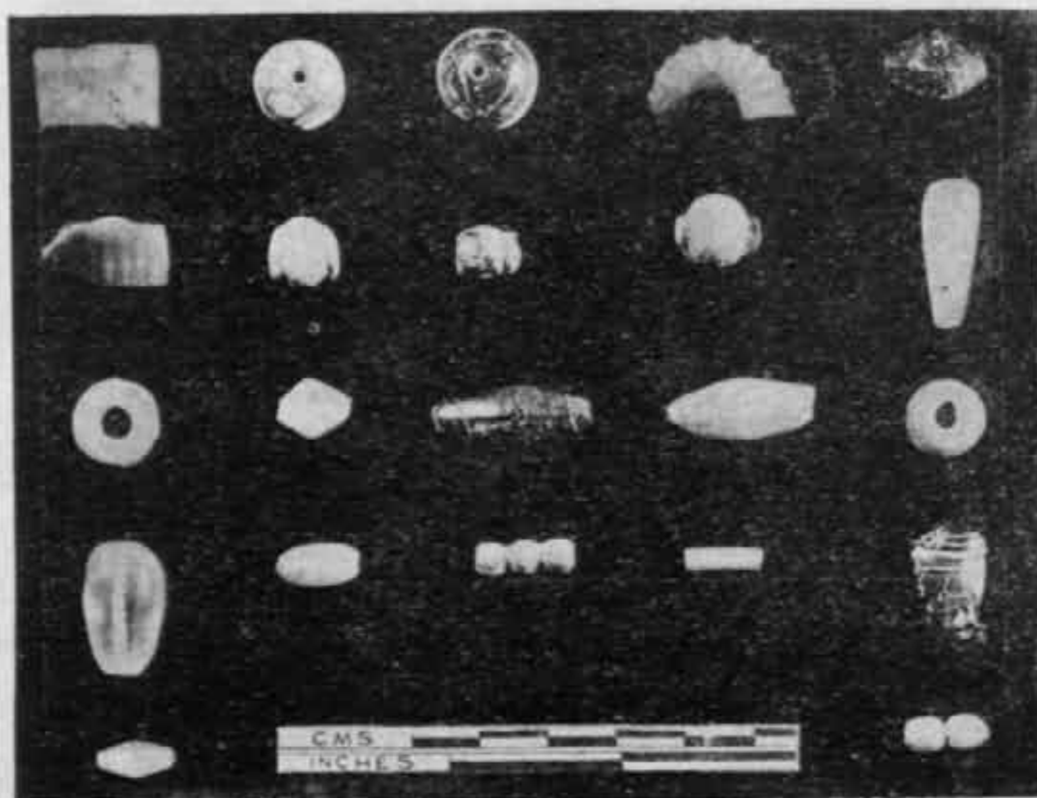


C



D

Ellora : A, *stamped sherds;* B, *terracotta mould and impression of a Traikutaka coin;* C, *copper signet-ring;* D, *intaglio with crab-impression and an etched stone tablet of a seated figure. See p.* 64

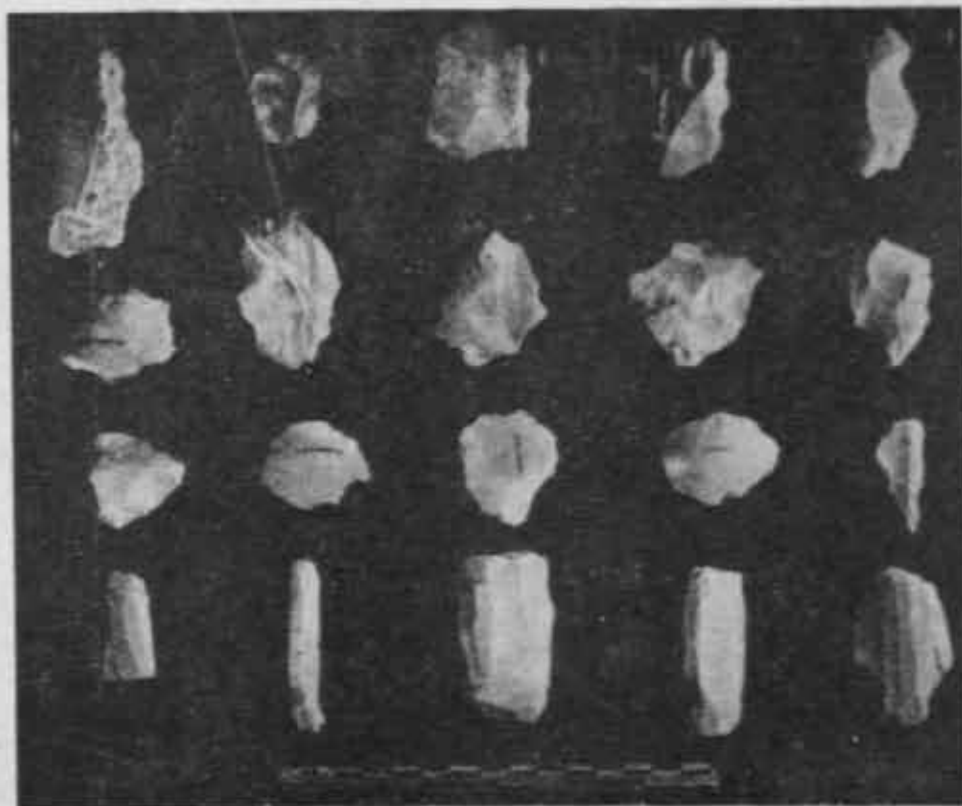


A

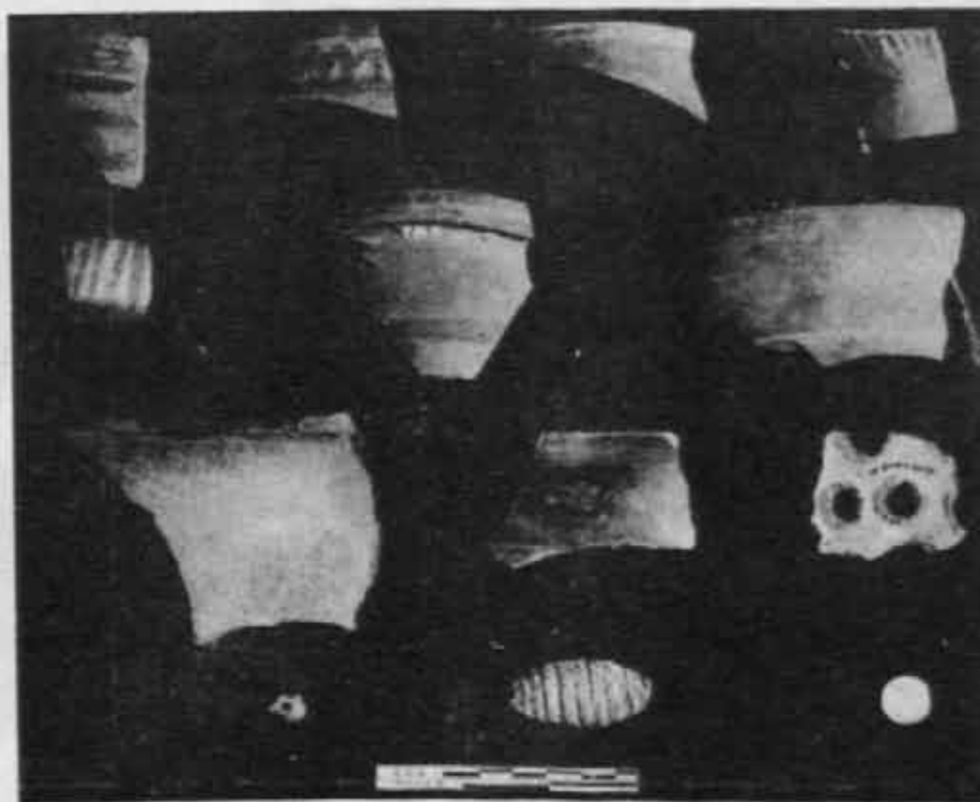


B

Ellora: A, beads; B, carved cult stone figures. See p. 64

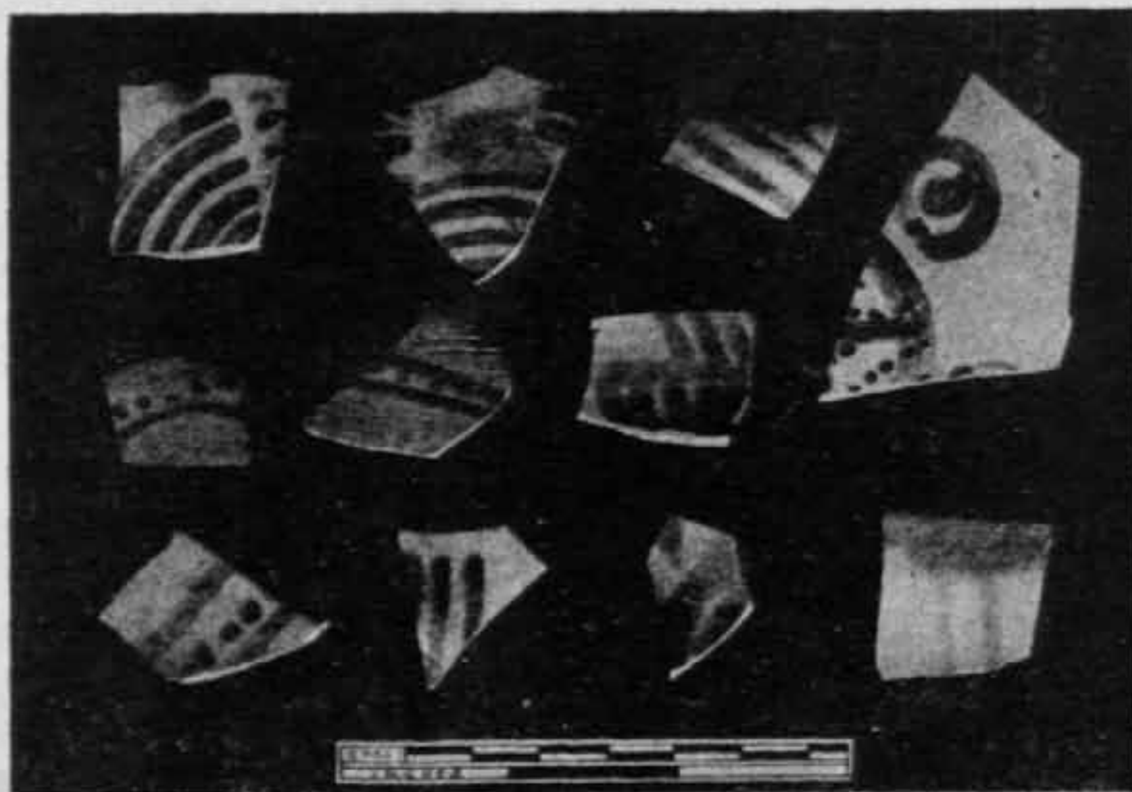


A



B

A, *Salvadgi: tools of Series II and microliths;* B, *Urchan: beads and pottery. See pp.* 64 *and* 65



A



B

A, *Kheri and Akabarpur-Baroth: Painted Grey Ware*; B, *Khurdi: copper channel-spouted bowl. See pp. 65 and 66*



A



B



C



D



E



F

A, *Baragram: Vajra-Tara (ht. 1 metre)*; B, *Charra: miniature Jaina temple with tirthankaras (ht. 28 cm.)*; C, *Jordighi-Kalikamata: Vishnu (ht. 73.7cm.)*; D, *Kushmundi: Surya (ht. 56 cm.)*; E, *Mahinagar: a male deity (ht. 35.5 cm.)*; F, *Mahinagar: dancing Ganesa (ht. 48.3 cm.)* *See p. 67*



A



B



C



D

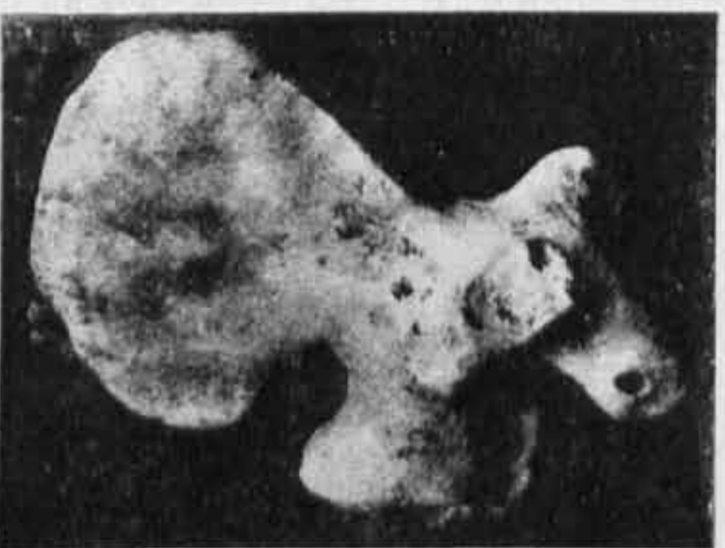


E



F

A, B, and C, *Allahabad Museum: Vishnu, Jhusi (ht. 71 cm.), Karttikeya, Kanauj (ht. 36.8 cm.), Ekamukha-linga, Mathura, (ht. 10.1cm.);* D and E, *Baroda Museum: Ganesa and Siva* ***Bhikshatanamurti;*** F, *Asutosh Museum, Calcutta:* ***wooden nayika*** *(ht. 68.5 cm.)* *See pp. 69 and 71*



A



B



C



D



E



F



G

Asutosh Museum, Calcutta: A, *terracotta humped bull, Harinarayanpur* (10.1*cm*); B, *stone bar-celt, Bagridhi* (*ht.* 29.2 *cm.*); C, *vase-fragment depicting epic-scene, Chandraketugarh* (*l.* 16.5 *cm.*); D, *toy-cart representing Indra or Kubera on winged elephant, Chandraketugarh* (*ht.* 12.7 *cm.*); E, *toy-cart representing Agni, Chandraketugarh* (*ht.* 18.4 *cm.*); F, *toy-cart with deity, Chandraketugarh* (*ht.* 17.8 *cm.*); G, *headless Jaina figure, Tilda* (*ht.* 6.4 *cm.*) *See p.* 70



A



B



C



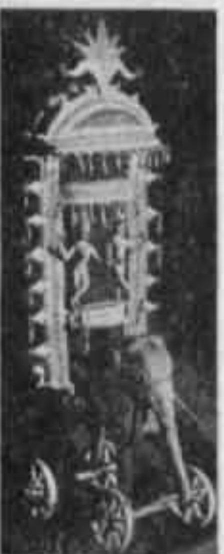
D



E

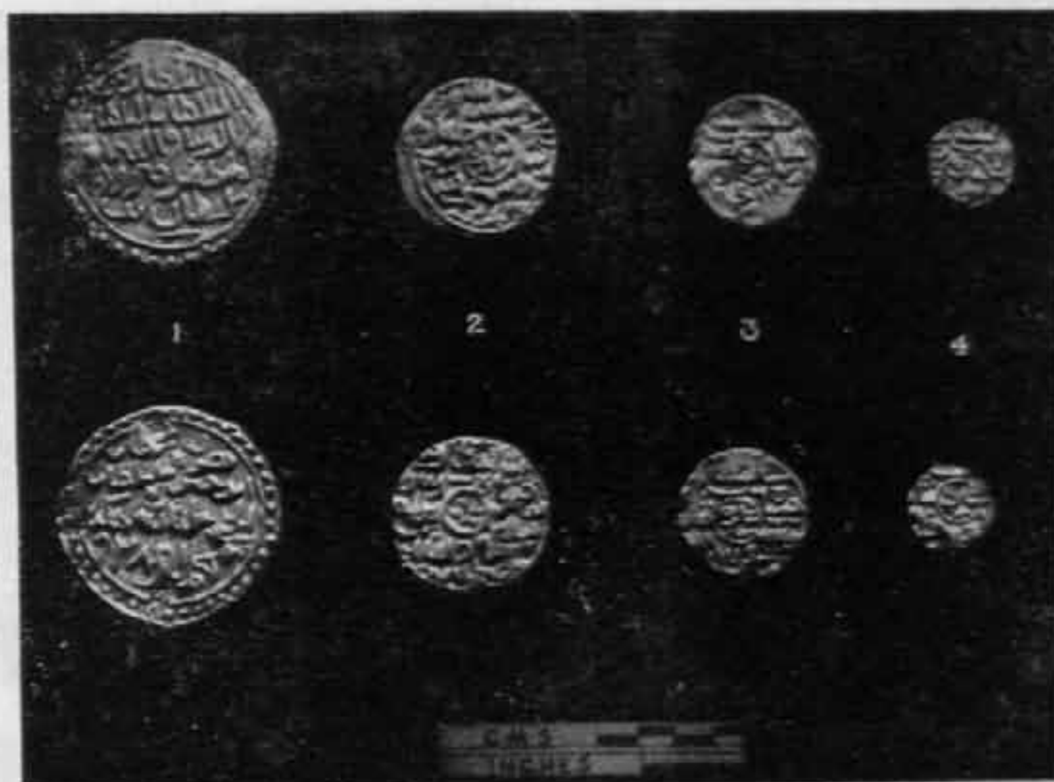


F



G

Asutosh Museum, Calcutta: A, *Lakulisa, Rangamati* (*l.* 48.2 *cm.*); B, *Nandi, Rangamati* (*l.* 34.4 *cm.*); C, *Vishnu-Lokesvara, Sarlanga* (*ht.* 1.6 *metre*); D, *Chamunda, Burdwan* (*ht.* 58.4 *cm.*); E, *linga with saktis* (*ht.* 35.5 *cm.*); F, *bronze Lakshmi, Ganjam* (*ht.* 21 *cm.*); G, *Lakshmi and Sarasvati shrine on wheeled elephant, Vishnupur* (*ht.* 69.4 *cm.*) *See pp.* 70 *and* 71

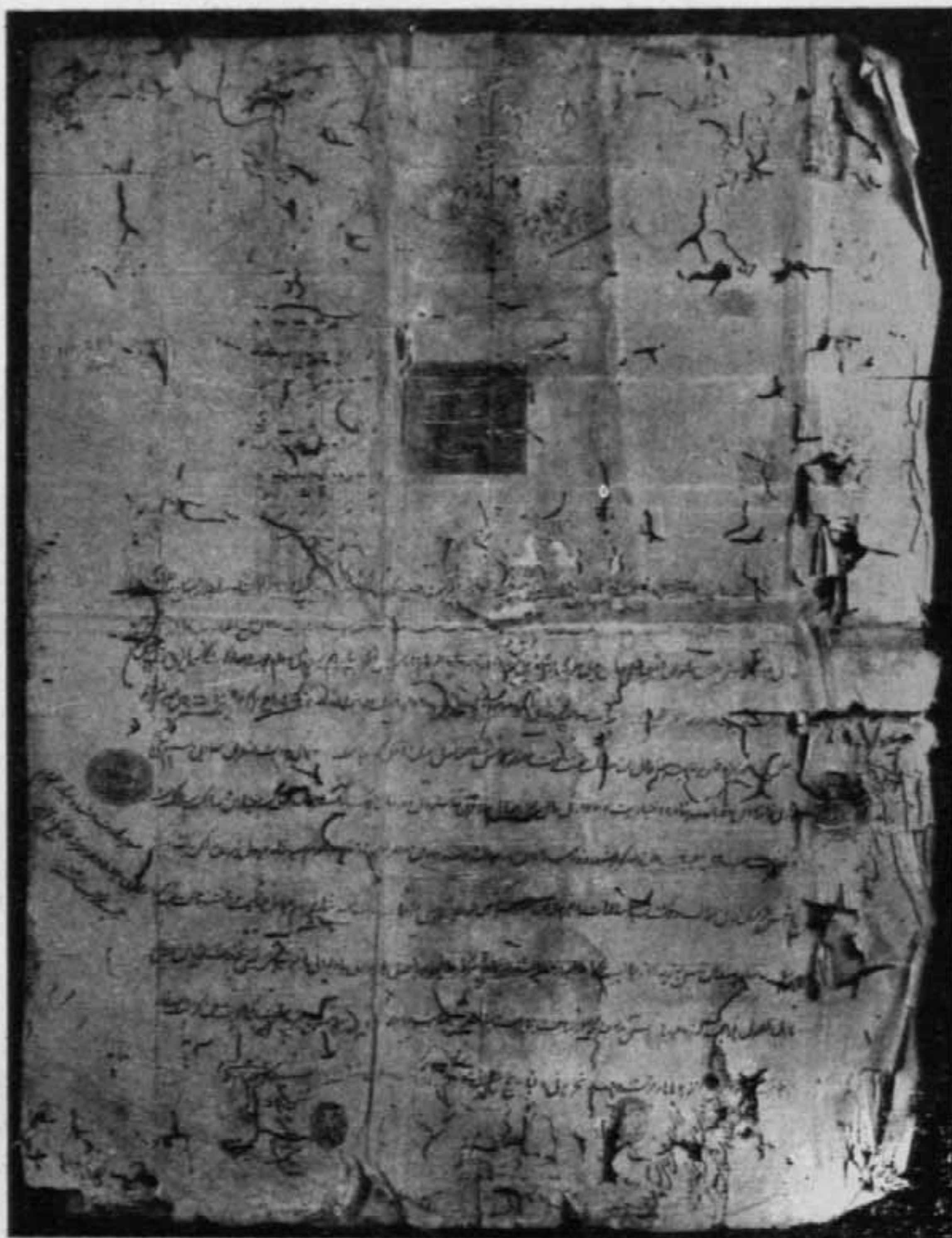


A

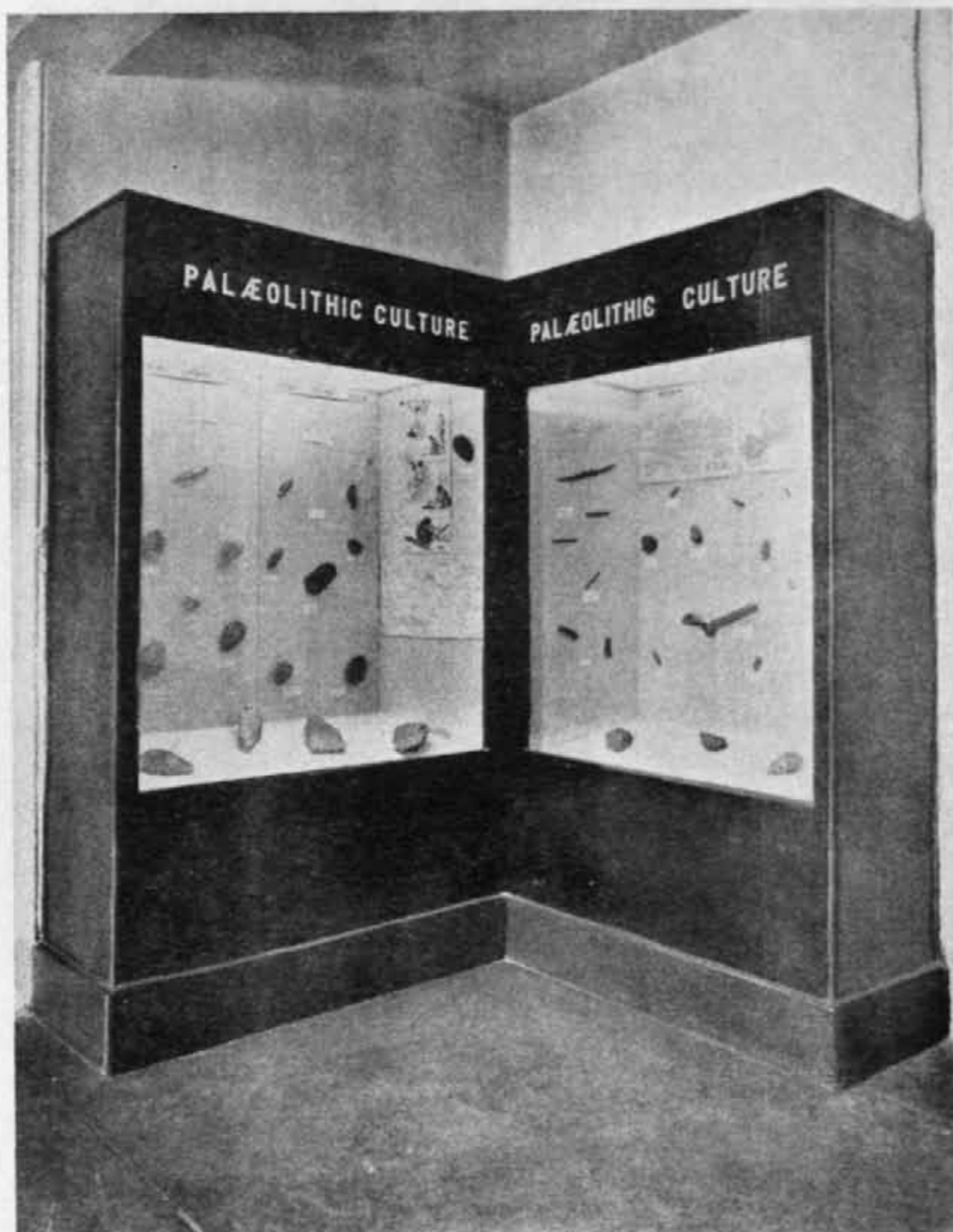


B

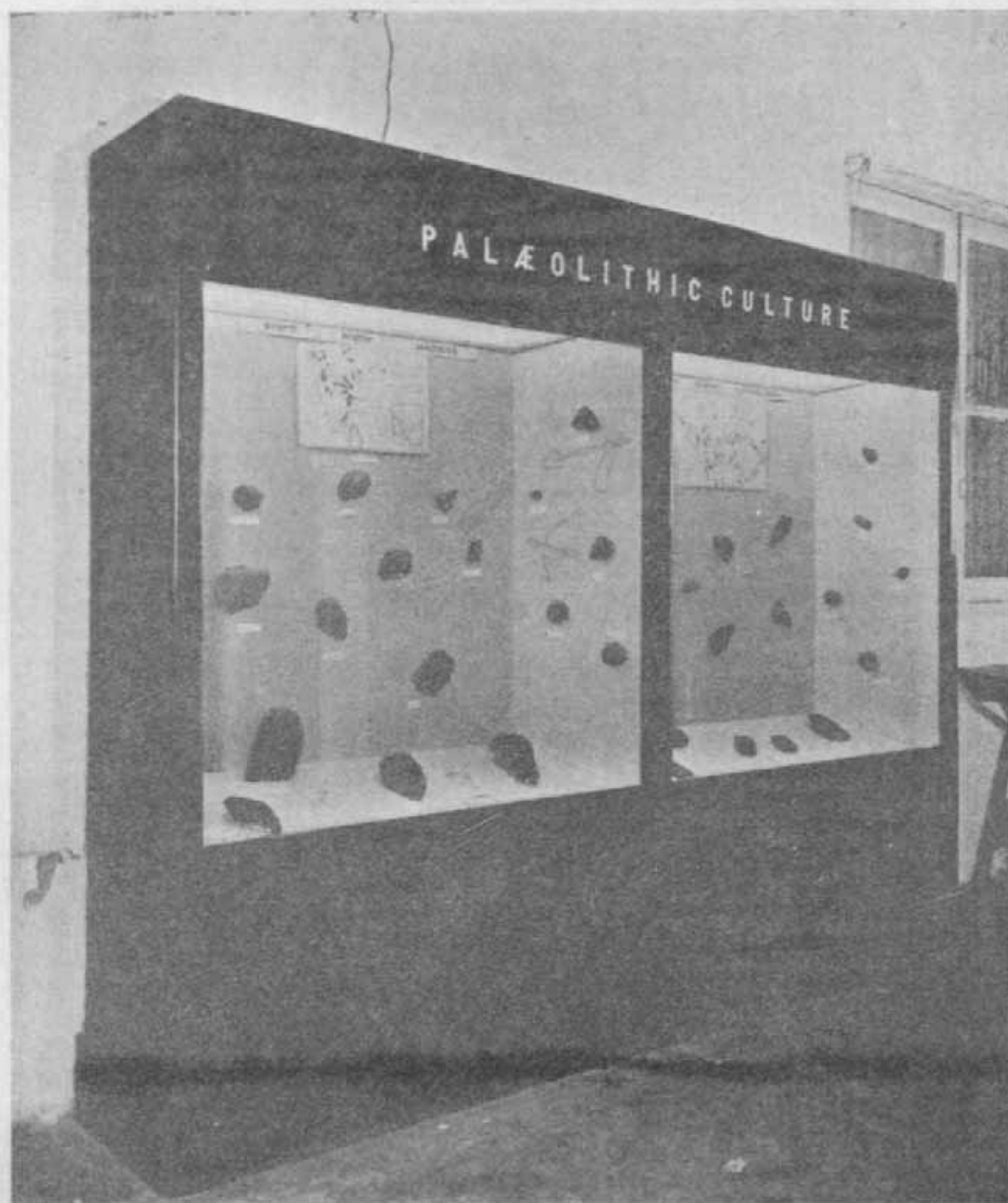
Indian Museum, Calcutta: A, *coins of 'Alau'd-Din Firuz Shah and Ghyasu'd-Din Mahmud Shah;* B, *Aparimita-nama-Mahayana-sutra. See p.* 71



Indian Museum, Calcutta: sanad of Shah Jahan (l. 52.6 cm.) *See p. 71*



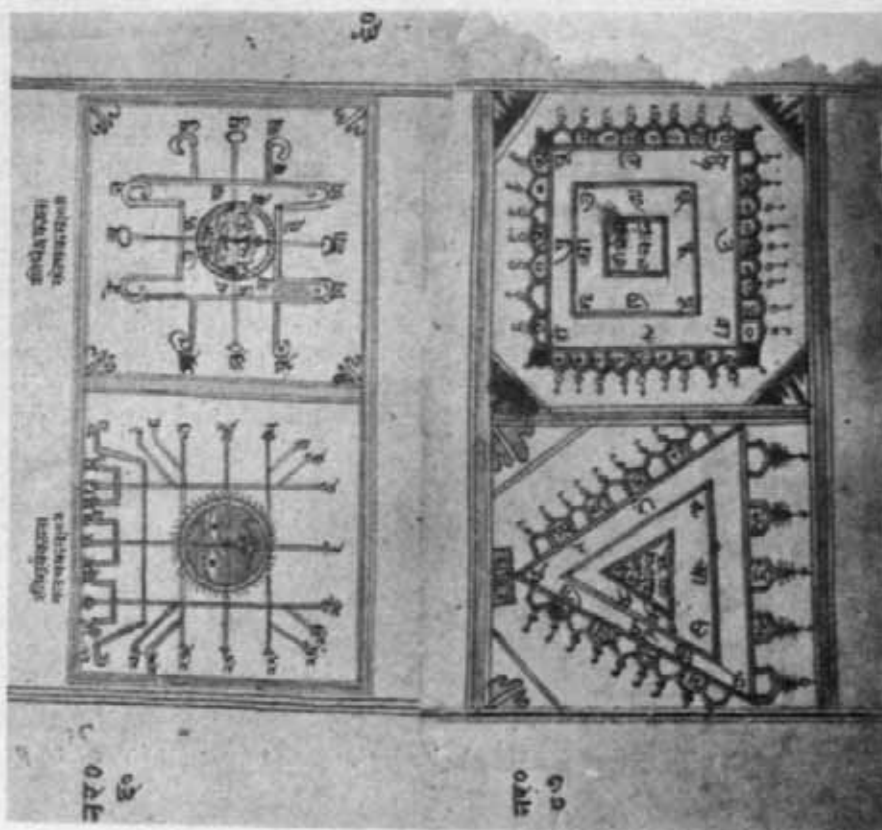
Indian Museum, Calcutta: remodelled show-case in prehistoric gallery. *See p.* 71



Indian Museum, Calcutta: remodelled show-case in prehistoric gallery. *See p. 71*



B



A

Chandradhari Museum, Darbhanga: palm-leaf manuscripts (ll. 26 cm. and 8 cm.) *See p.* 71

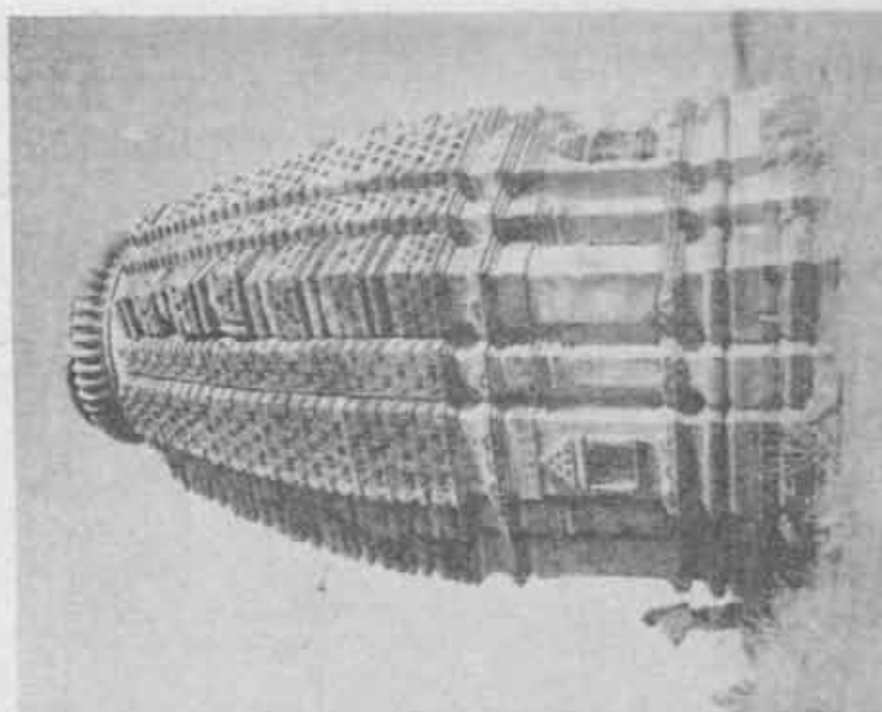


A

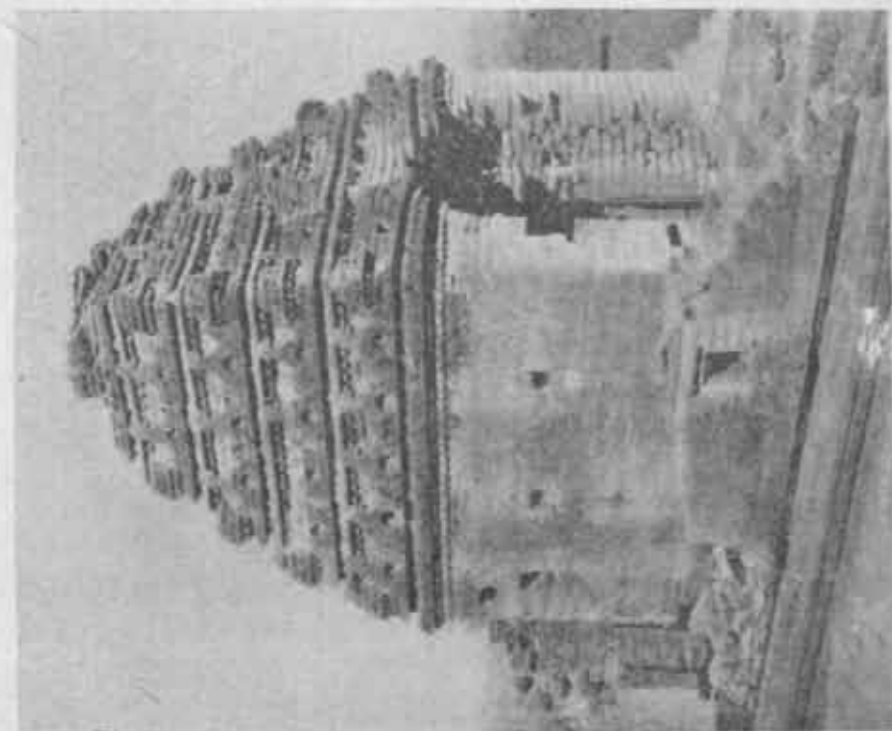


B

Bharat Kala Bhawan, Varanasi: inscribed Bharhut railing (l. 70cm.) *See p. 74*

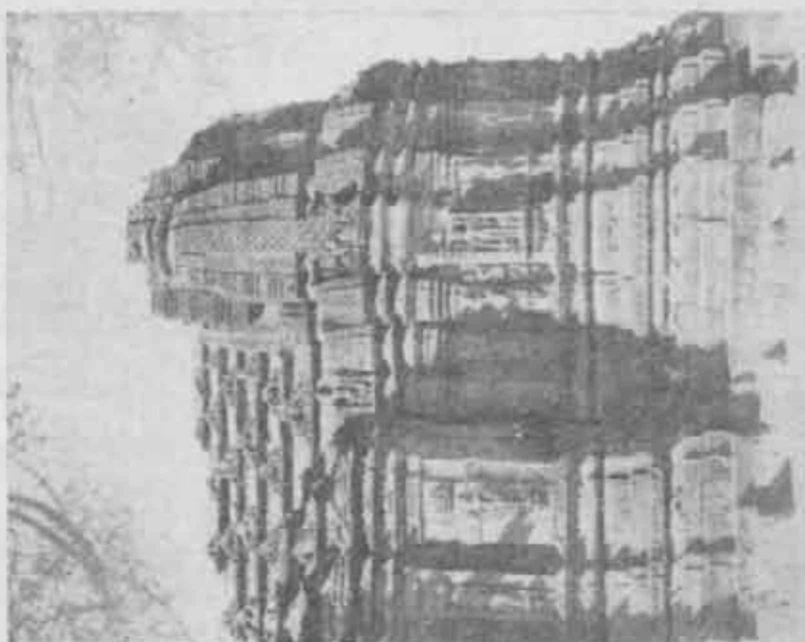


B

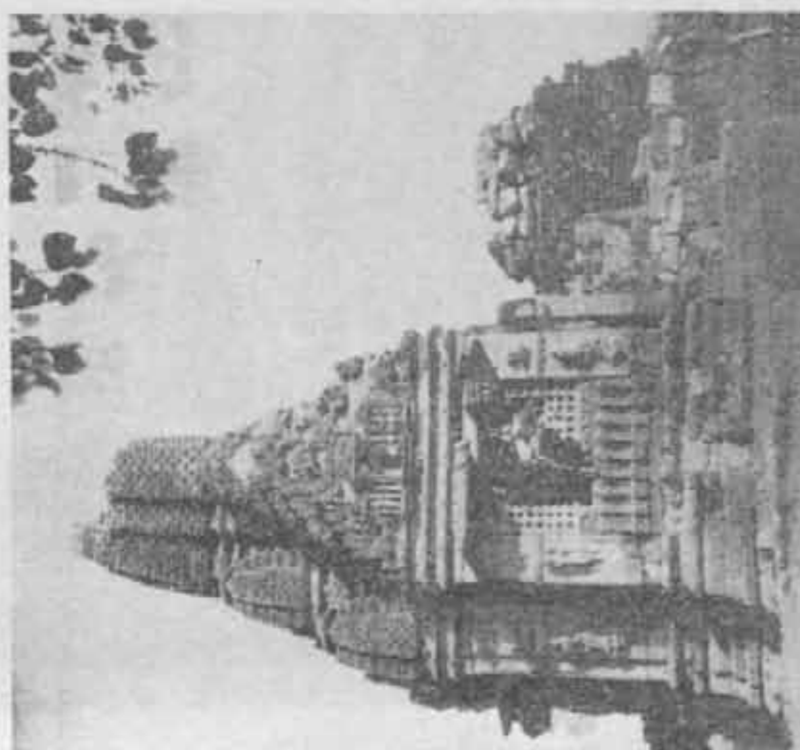


A

A, *Son-Kansari: Temple* 1; B, *Roda: Temple* 3. *See p.* 73



B



A

A, Kerakot: Siva temple; B, Kotai: Sun temple. See p. 75



Kotai: sculptural decoration on Sun temple. *See p. 75*

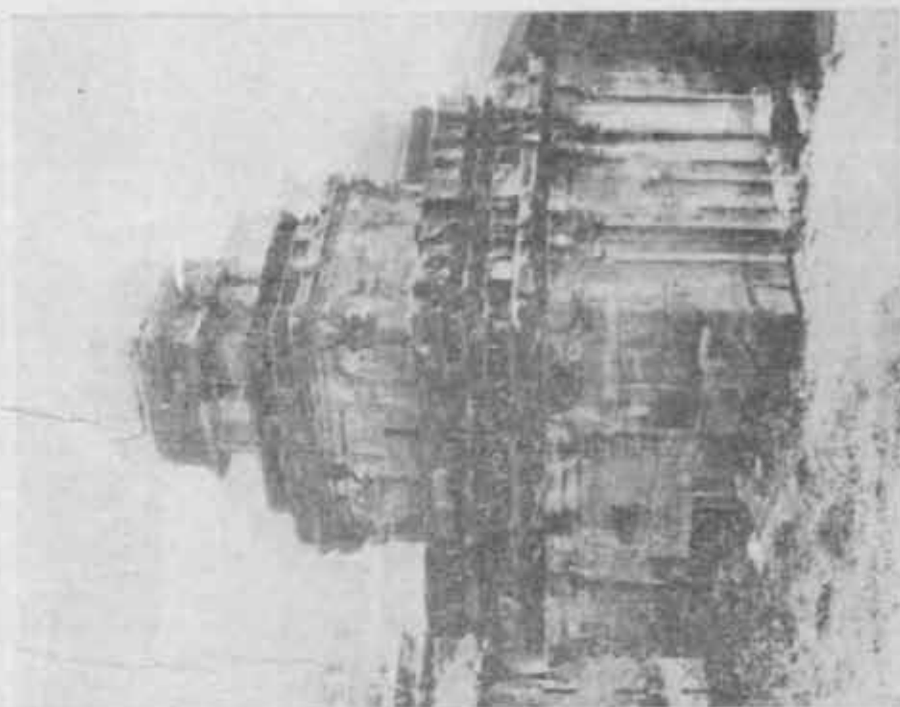


A



B

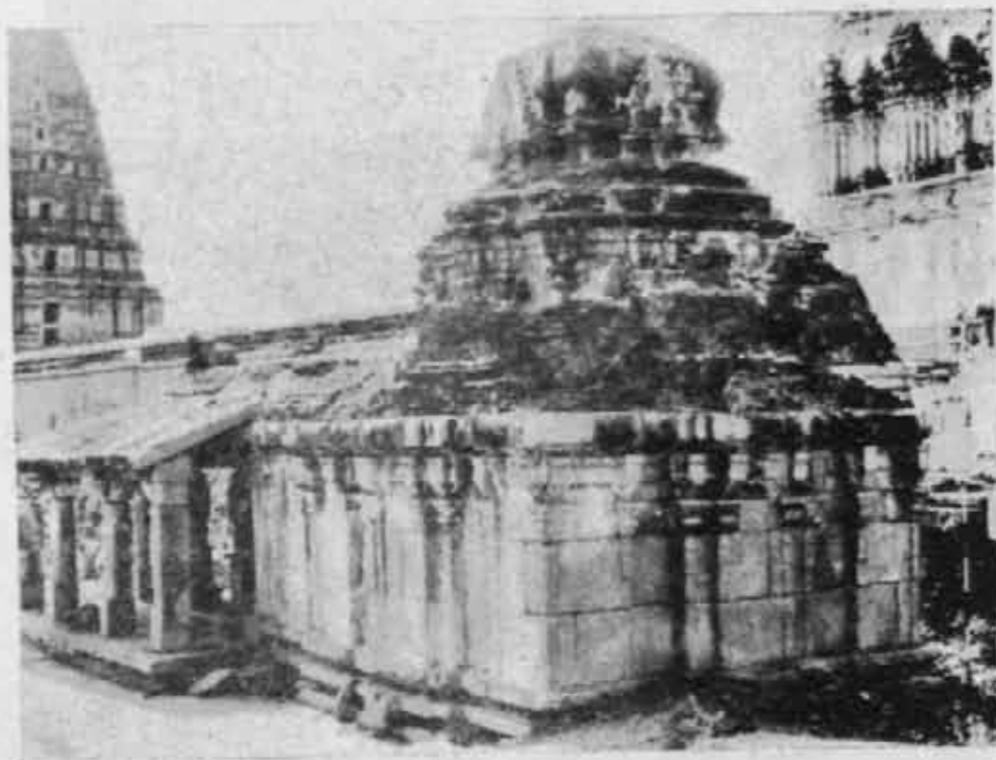
Bhokardhan: A, *cave-temple;* B, *Anantasayin Vishnu in the cave-temple*. *See p.* 76





A B

A, *Bhokardhan: Baladeva and Subhadra in cave-temple;* B, *Hampi: Durga temple.* *See p. 76 and 77*

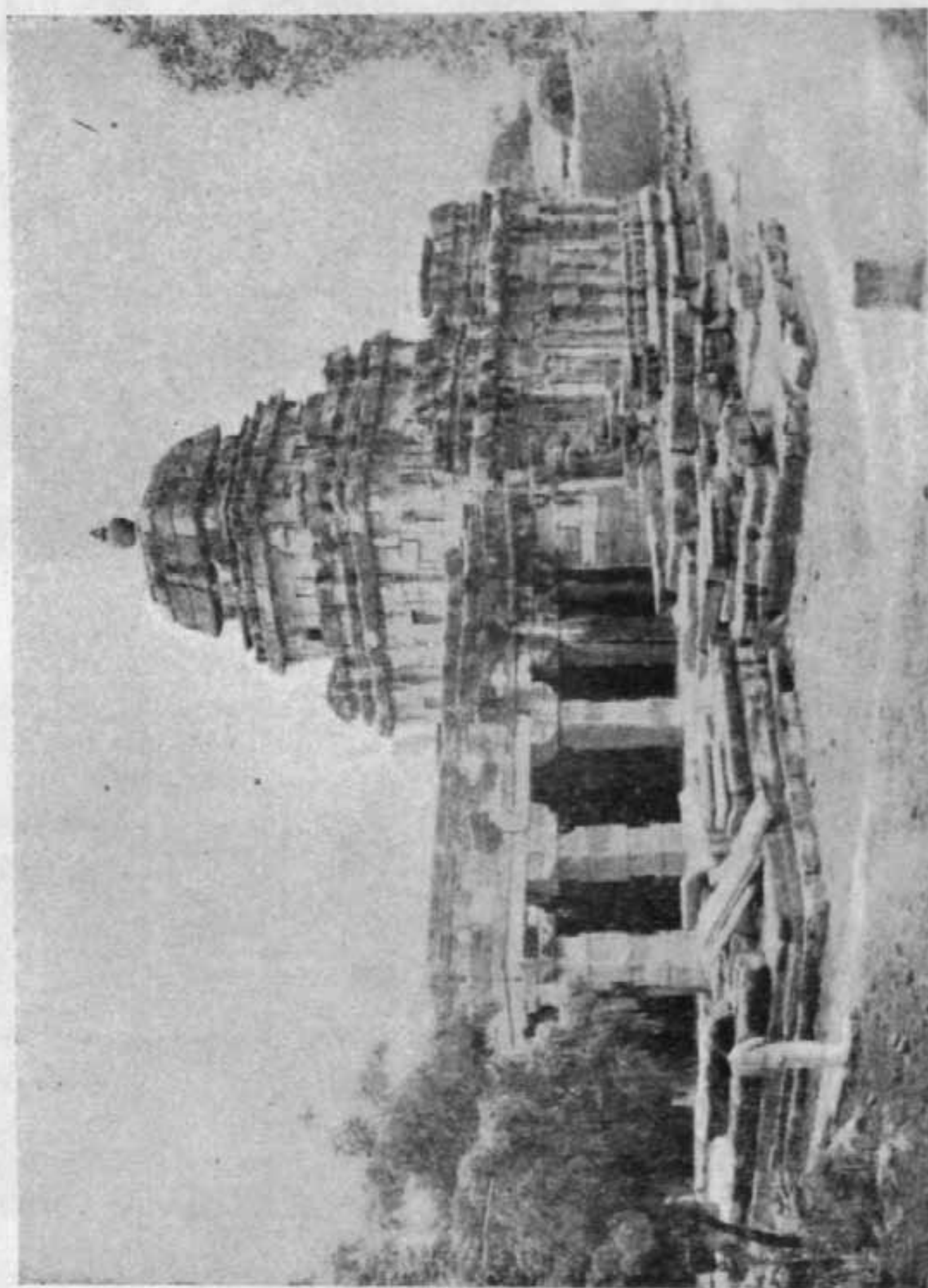


A



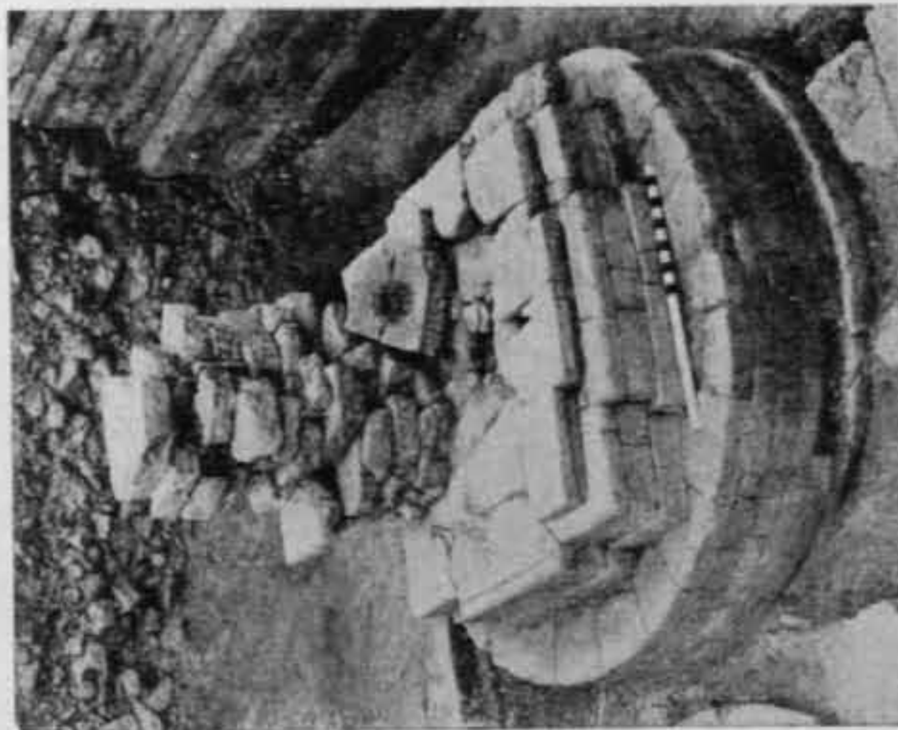
B

Hampi: Siva temples. See p. 77



Pattadkal : Sanganesvara temple. *See p. 77*





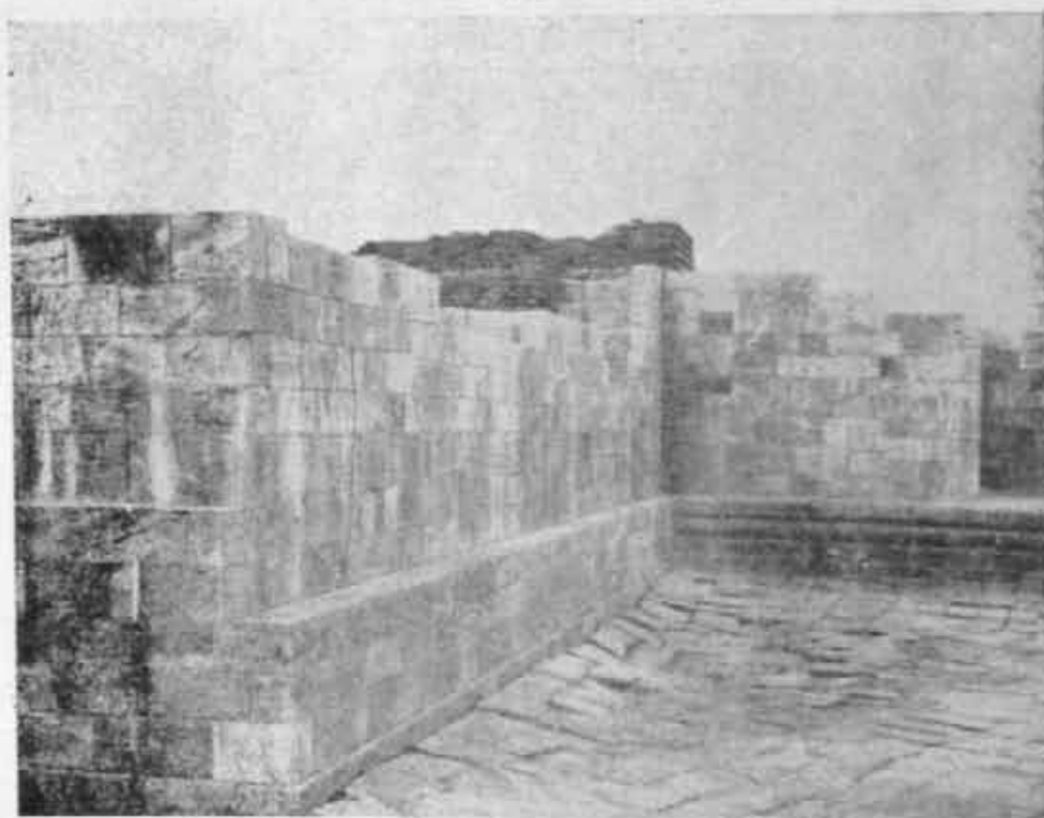
A B

Ratnagiri: votive stupa, before and after repairs. *See p.* 81

14a—3 D.r. of Arch/61



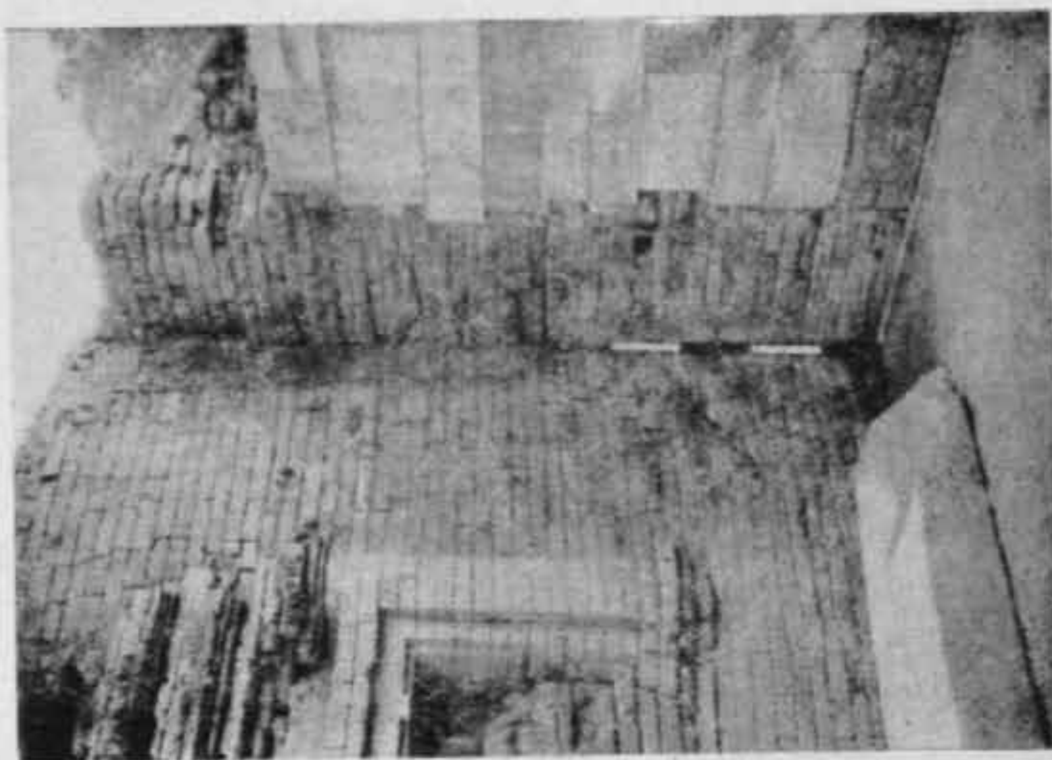
A



Ratnagiri: flank of the south wall of Monastery 1, *before and after repairs.* *See p.* 81



A

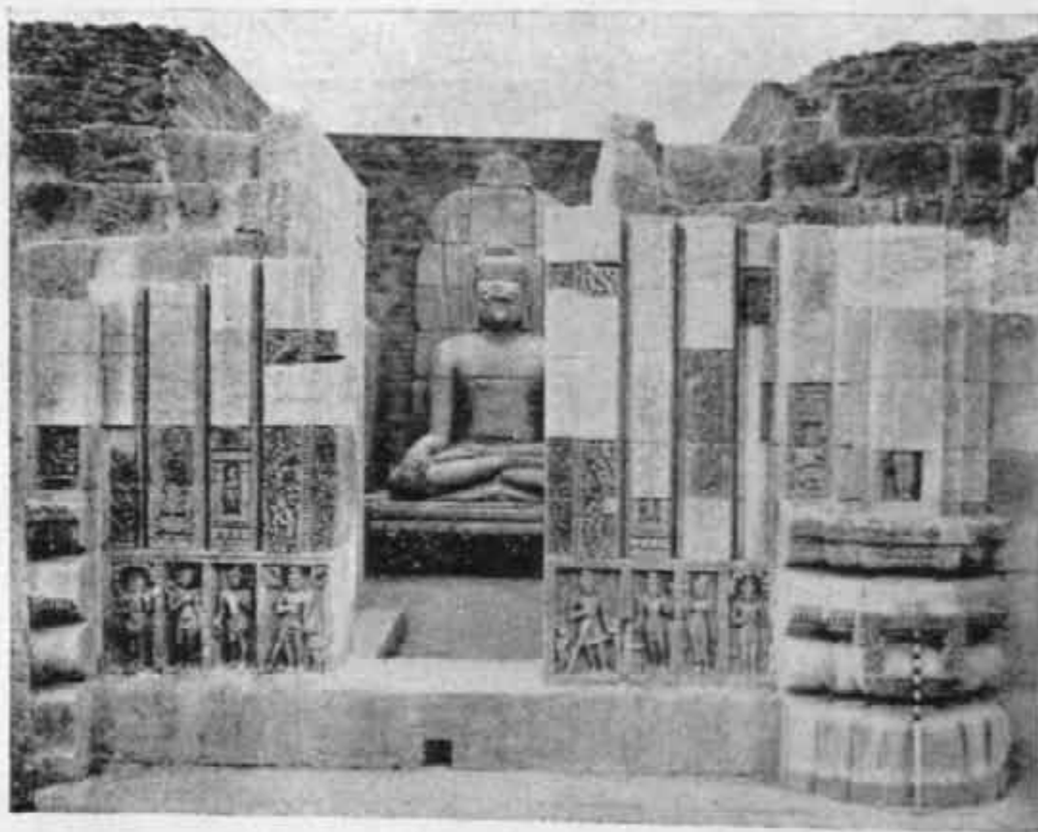


B

Ratnagiri: eastern flank of the south wall of the rear porch of Monastery 1, before and after repairs. *See p. 81*



A

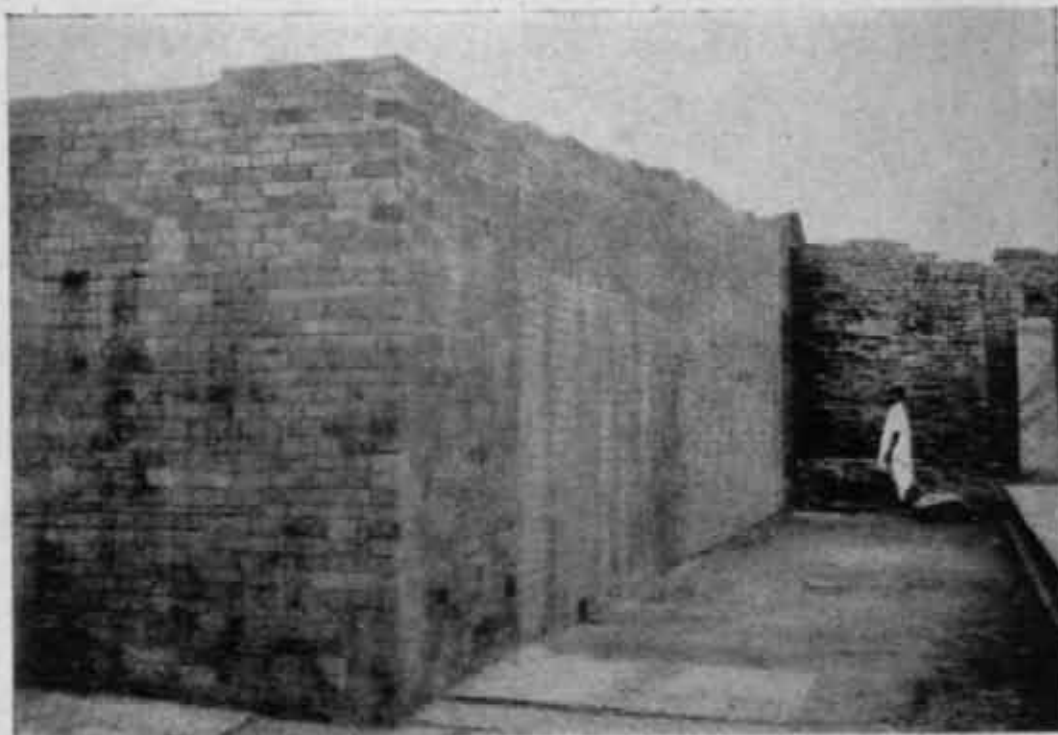


B

Ratnagiri: facade of the shrine of Monastery 1, before and after repairs. *See p. 81*

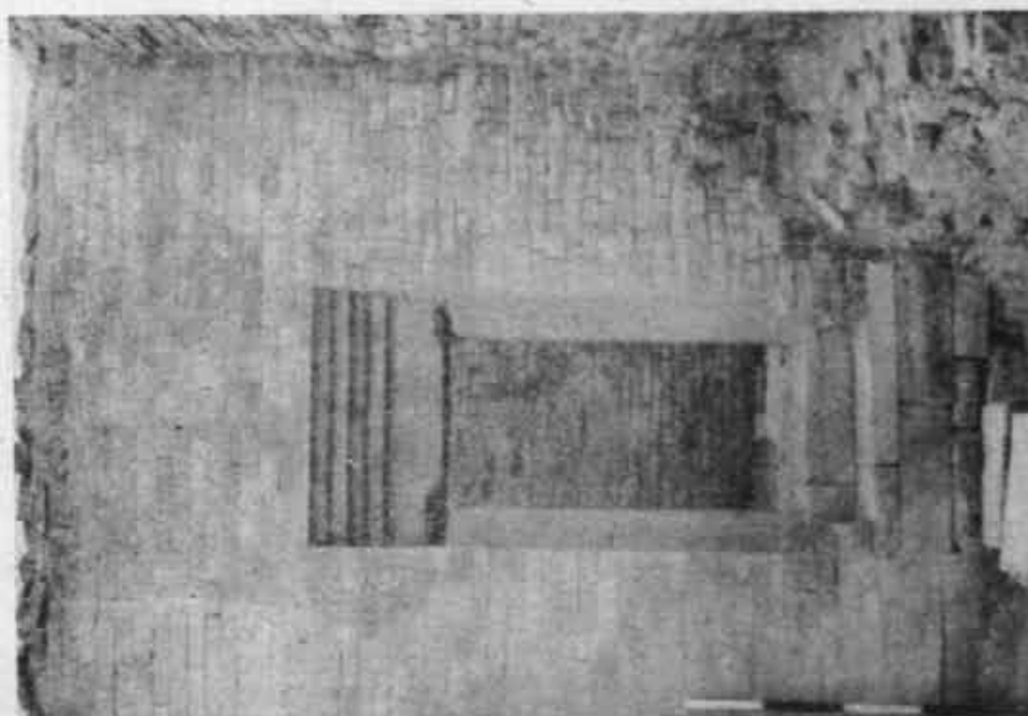


A



B

Ratnagiri: wall behind the eastern flank of the northern verandah of Monastery 1, *before and after repairs.*
See p. 81

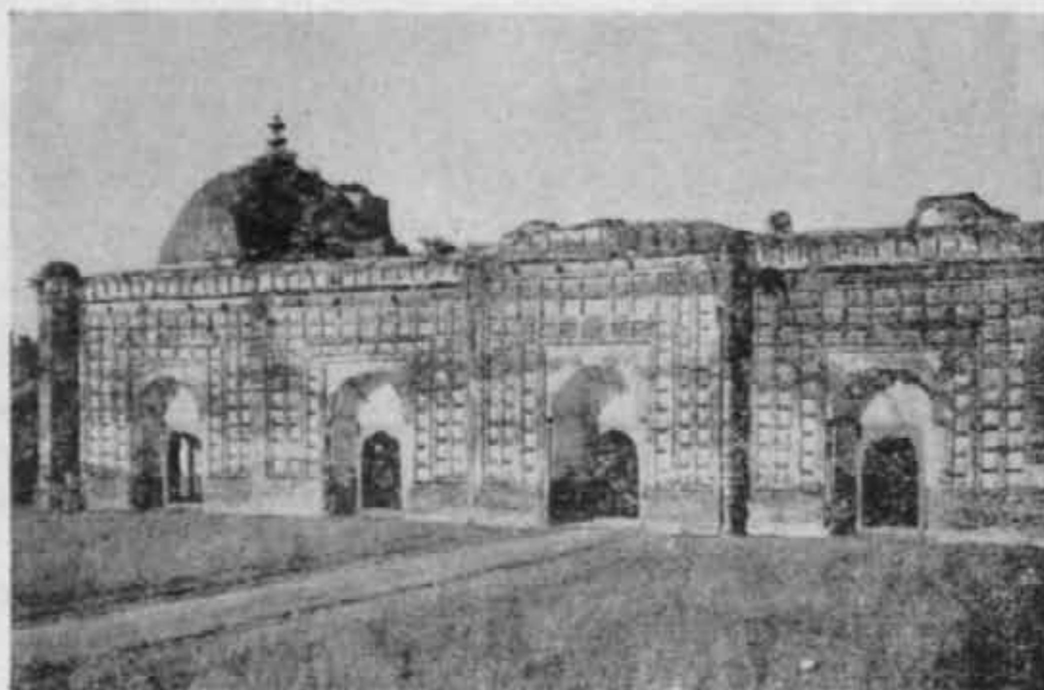


B

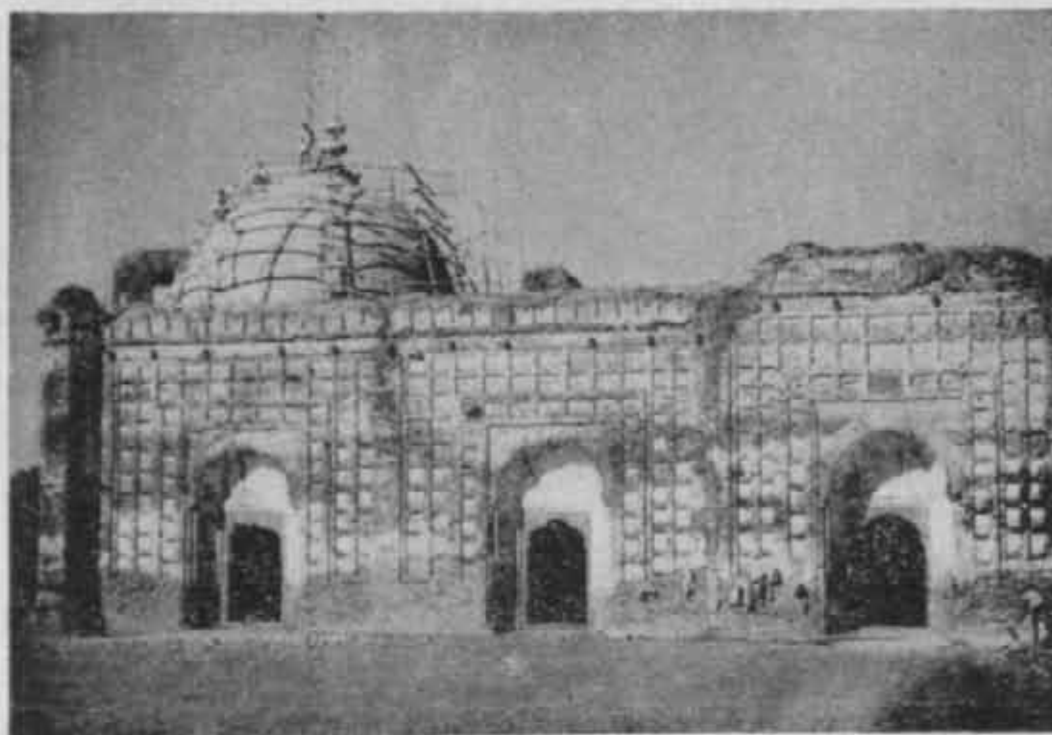


A

Ratnagiri: facade of Cell 11, *before and after repairs. See p.* 81

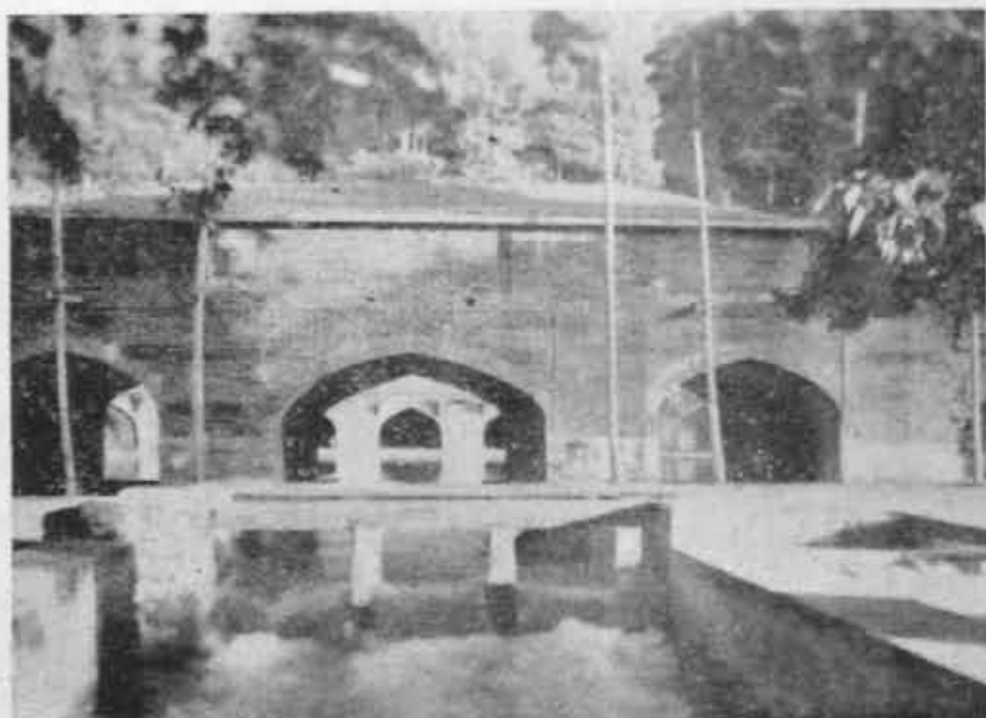


A



B

Katra: mosque of Murshid Quli Khan with damaged southern dome, before and after restoration. See p. 83



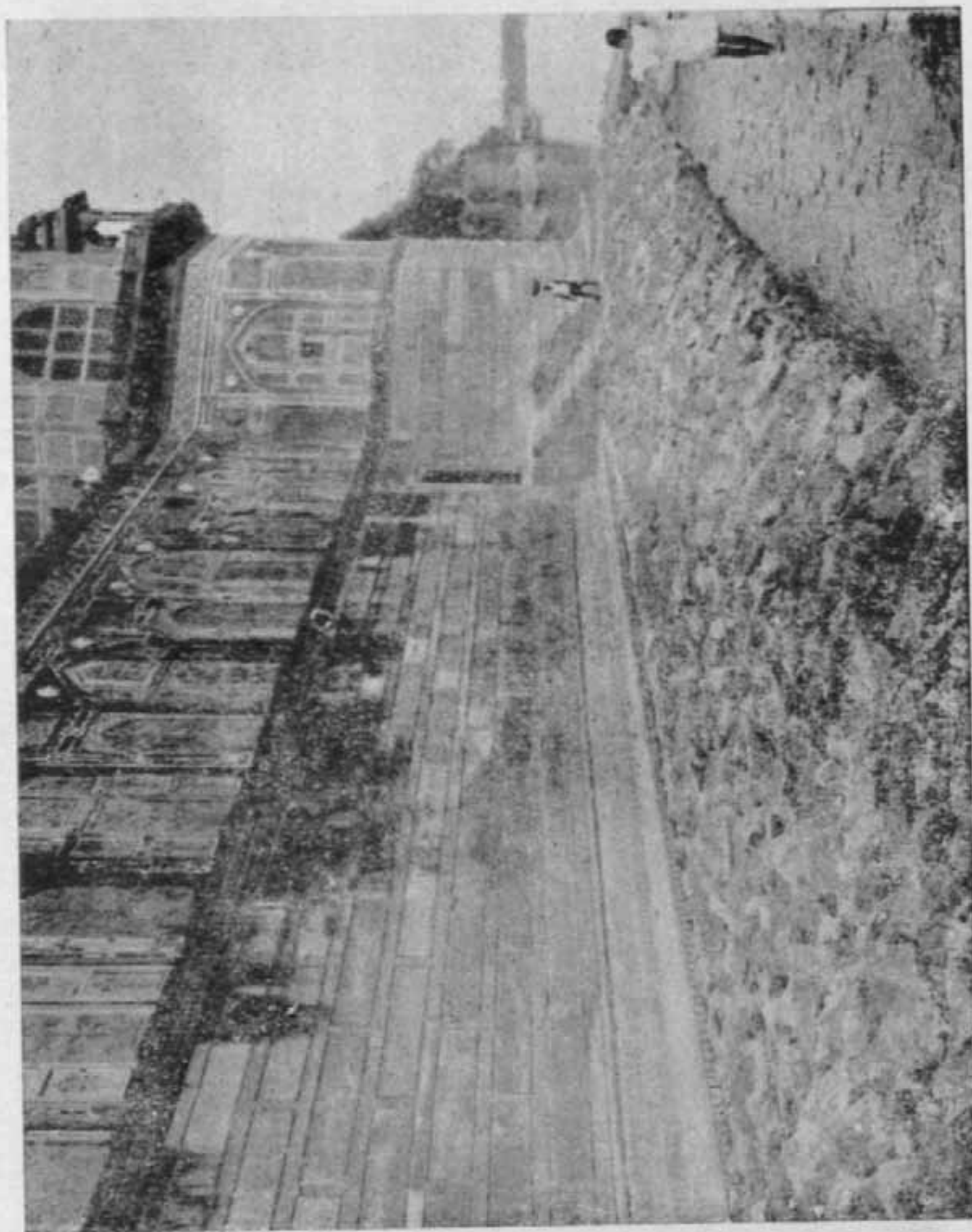
A



B

Verinag: arched façade, during and after repairs. *See p.* 83

PLATE CIII



Agra: Taj-Mahal, boulder-pitching along the plinth on the river-side. *See p. 86*



A



B

Delhi: Tughlakabad, southern wall of the citadel, during and after repairs. *See. p.* 89



A



B

Alampur : Taraka-Brahma temple, before and after repairs. See p. 93



A



B

Salihundam: minor stupas, before and after repairs. See p. 93

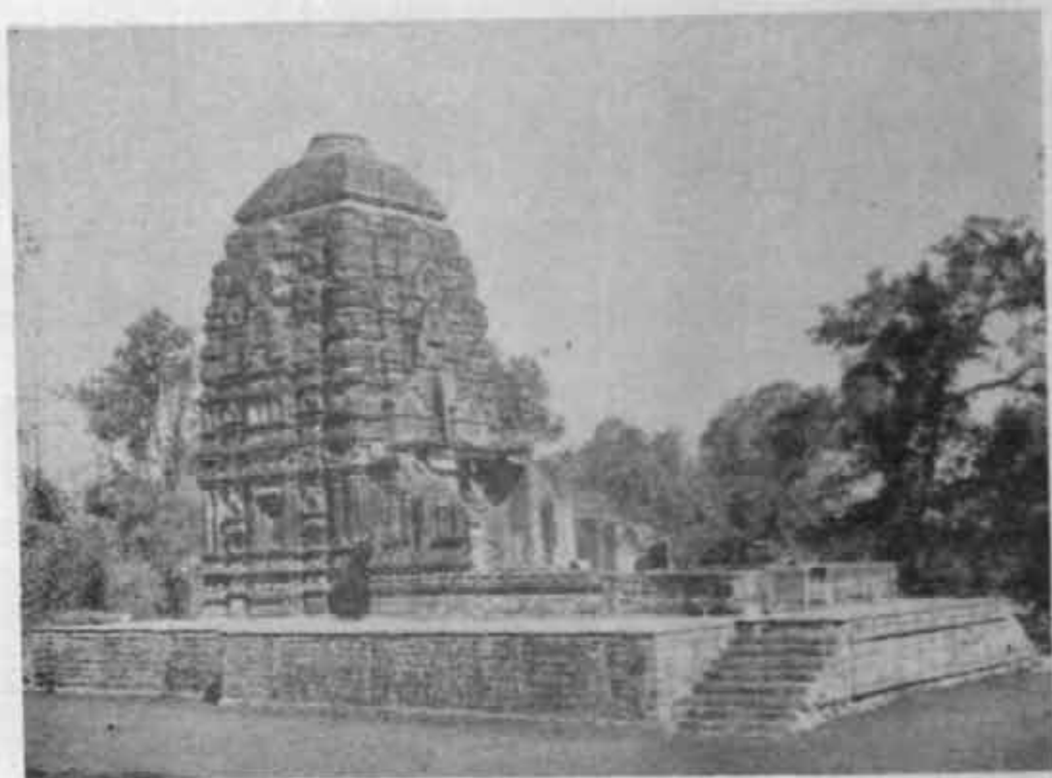


A



B

Warangal: fort, Jangamesvara temple, before and after repairs. See p. 94



A

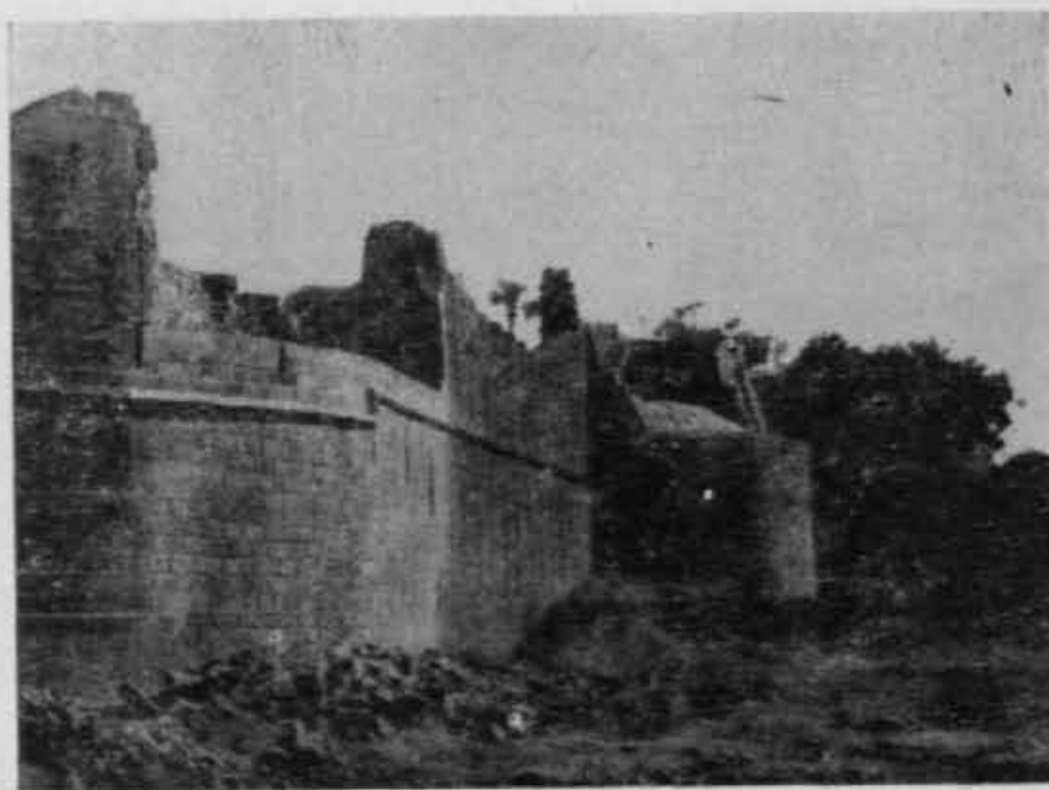


B

Sirpur : Lakshmana temple, A, *wrong restoration, and* B, *proper preservation of the top.* *See p.* 94



A

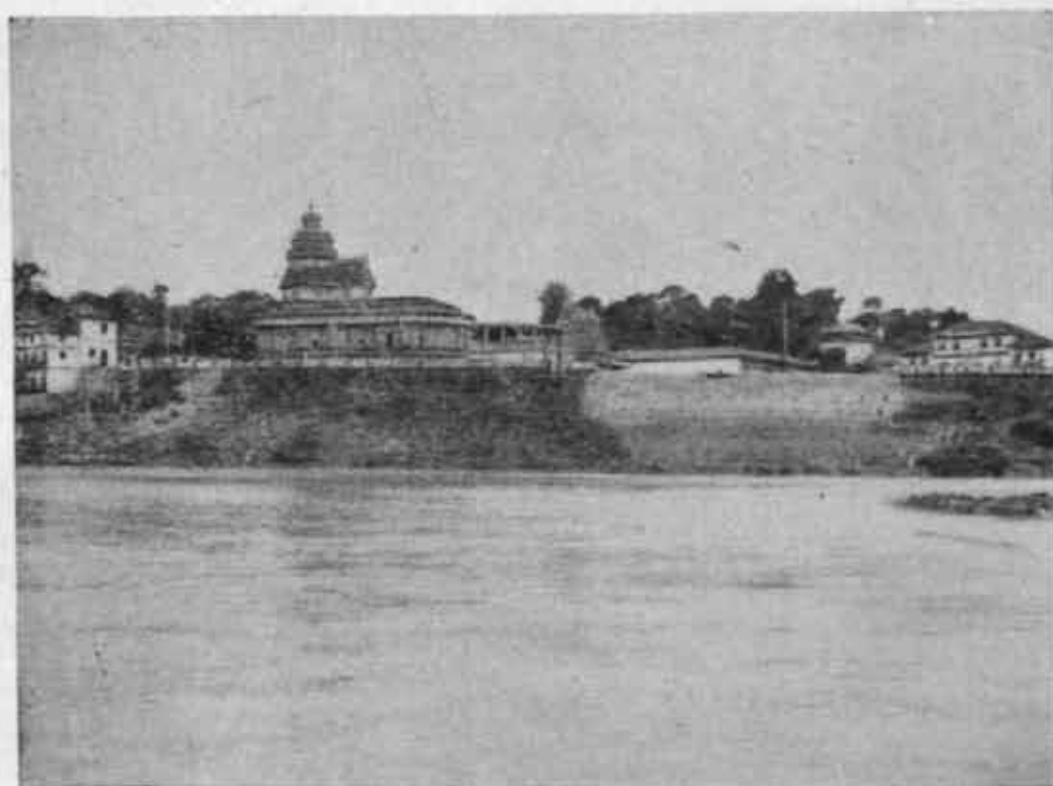


B

Chanda: Gond Rajas' tomb, before and after repairs. See p. 94



A



B

Sringeri: Vidya-Sankara temple, fallen revetment, before and after repairs. See p. 98

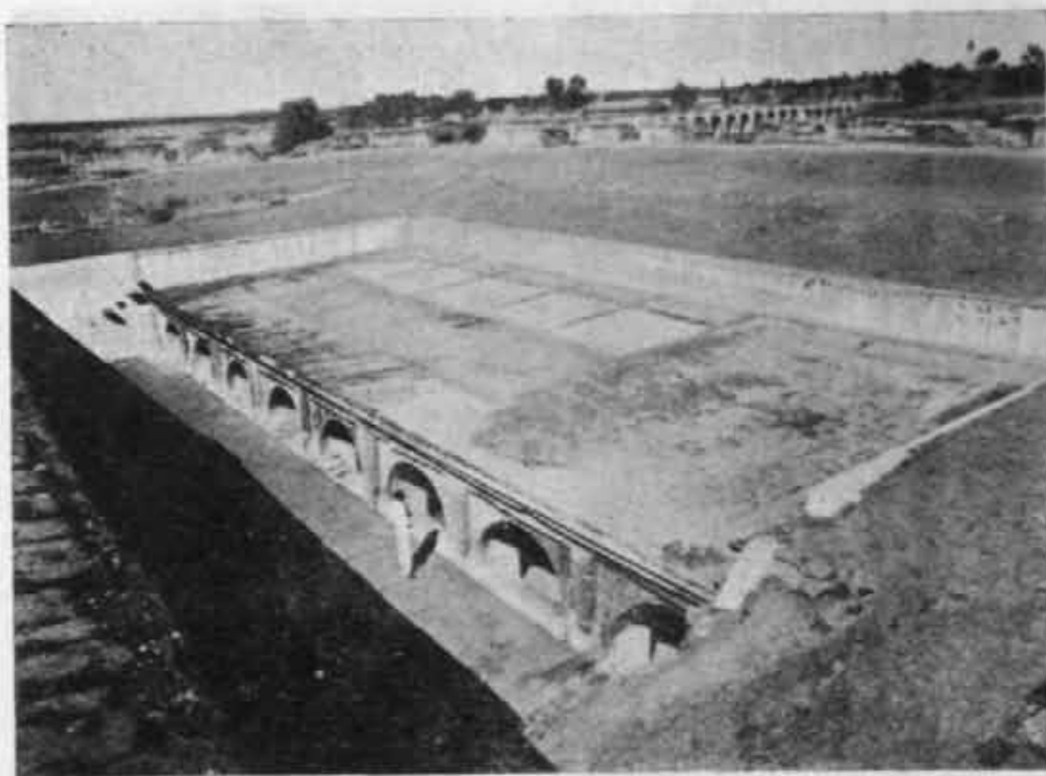


A



B

Sravanabelgola: Gommatesvara temple, south corridor of outer prakara, before and after repairs. See p. 98



A



B

Seringapatam: fort, Colonel Bailey's dungeon, before and after repairs. See. p. 98



A

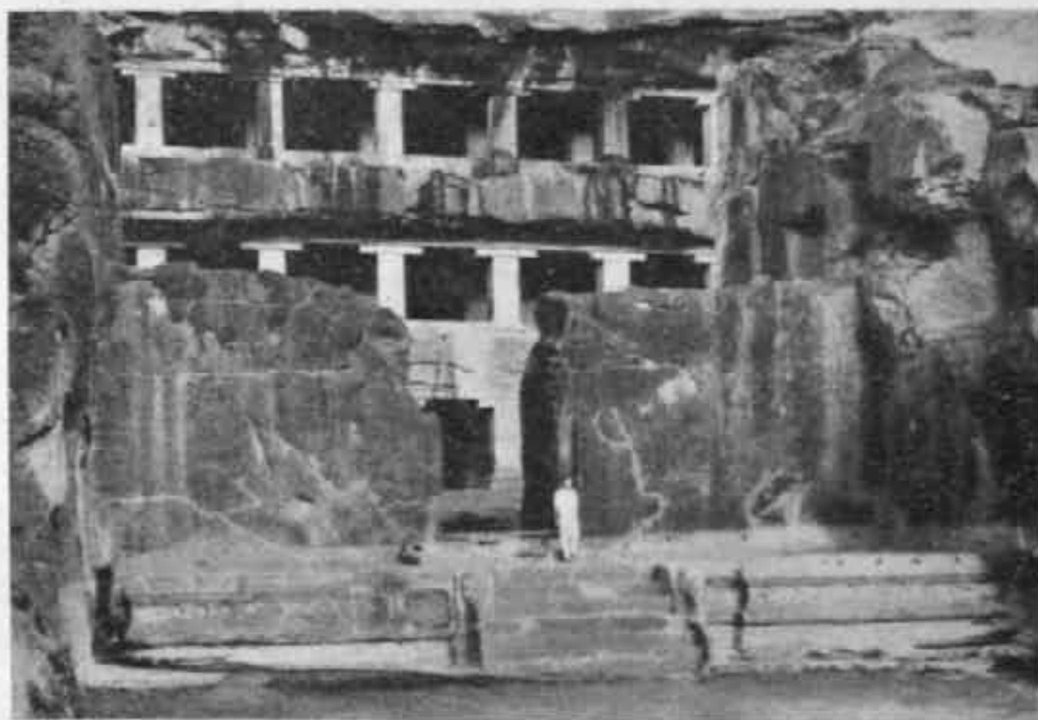


B

Aurangabad: rock-cut caves, A, newly-discovered cave with Brahmanical and Buddhist figures, during clearance, and B, Ganesa, flanked by Mahishmardini. *See p. 99*

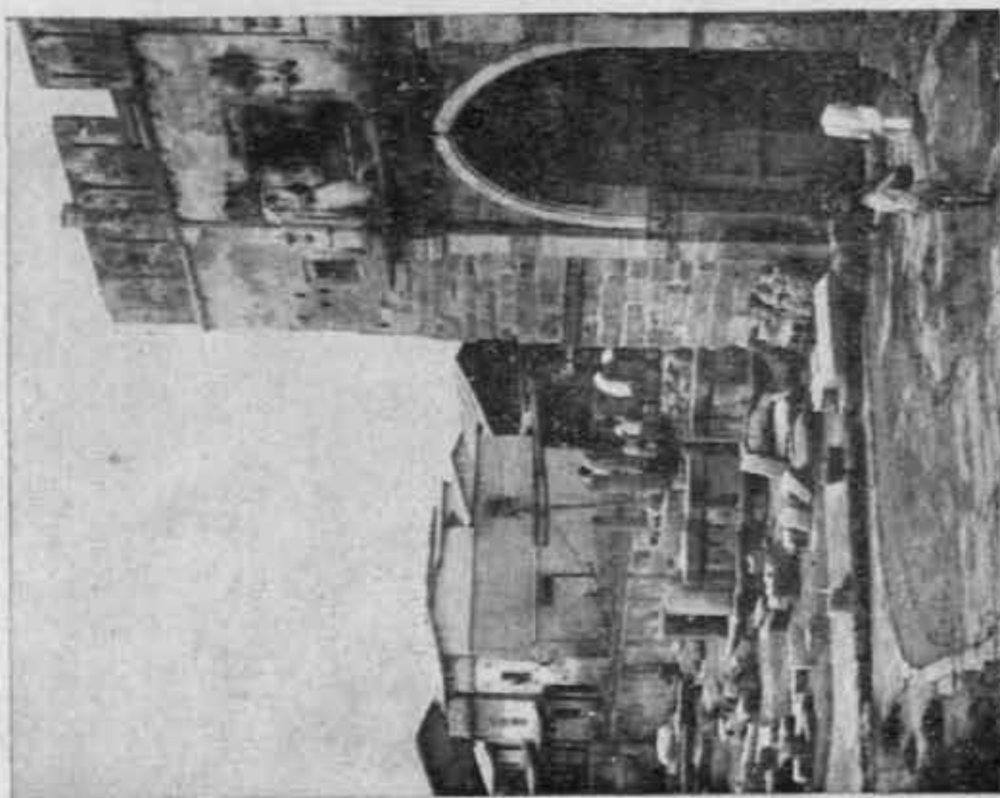


A

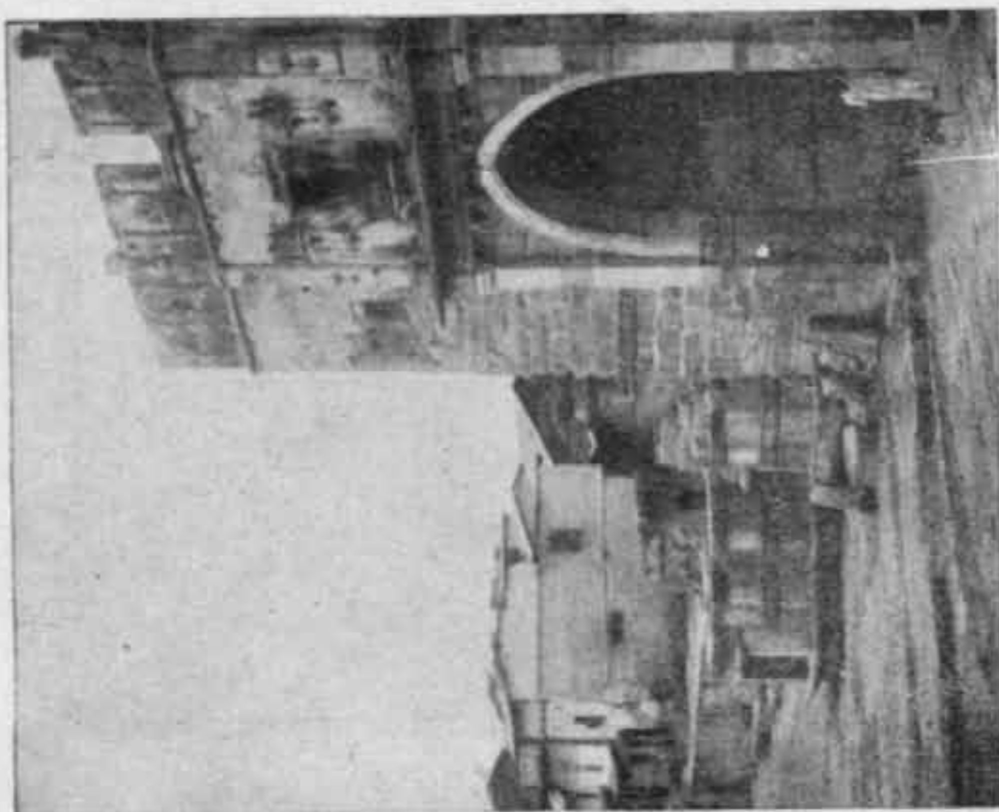


B

A, *Aurangabad: Buddha (Amitabha ?) in the newly-discovered cave;* B, *Ellora: Cave* 12, *exposed front-mouldings of the plinth, after clearance. See pp.* 99 *and* 100



A



B

Dabhoi: Hira gate, Vidyanatha shrine, before and after repairs. *See p.* 102

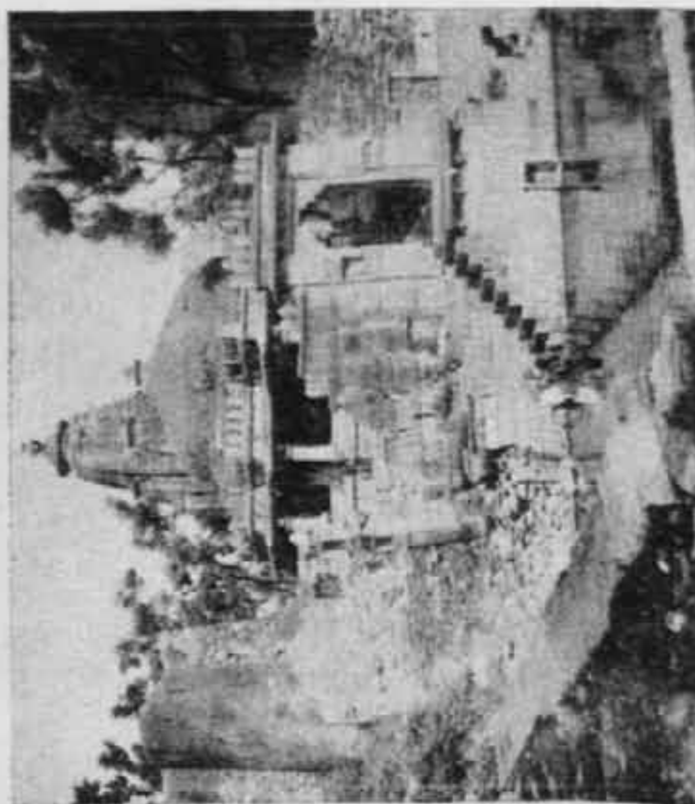


A

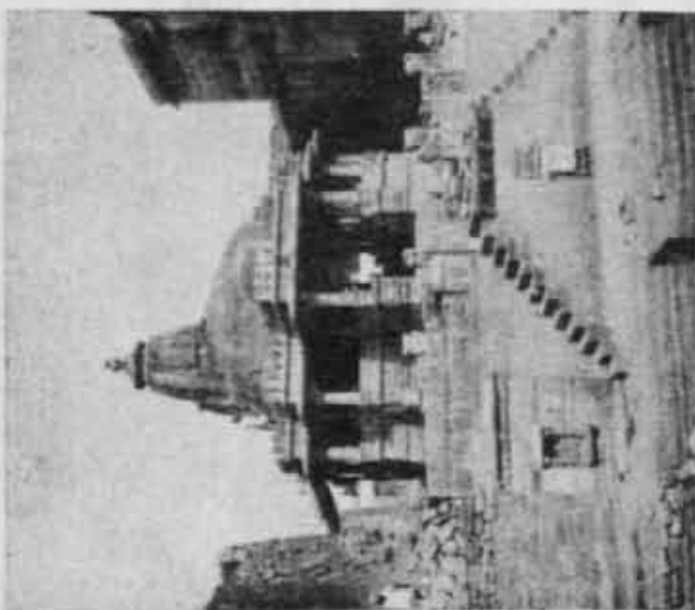


B

Pavagarh: Sat-Manzil, before and after repairs. *See p.* 103

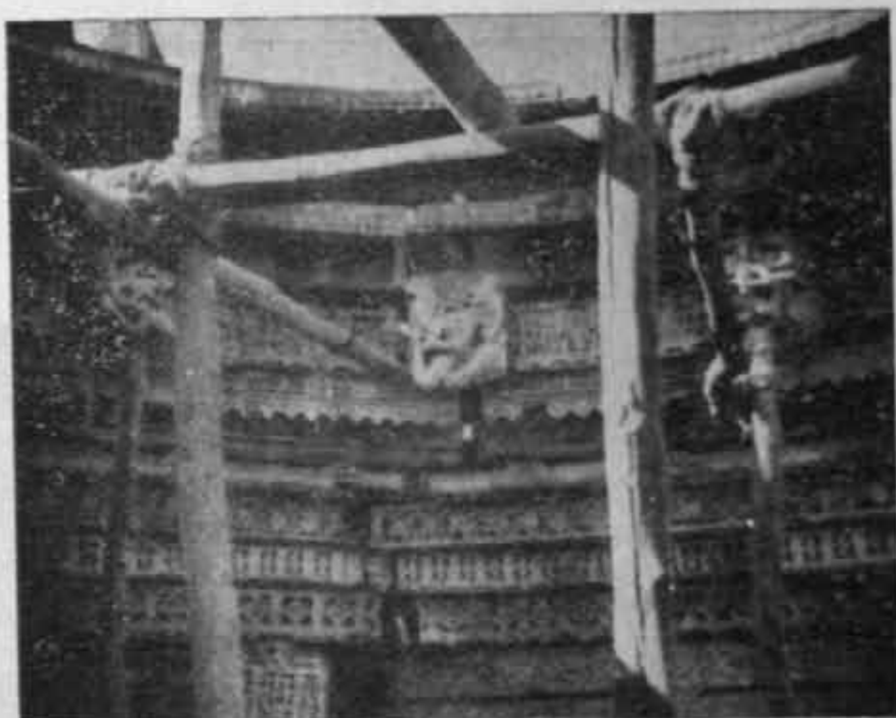


A



B

Chitorgarh: fort, Jaimal's palace, before and after repairs. See p. 103

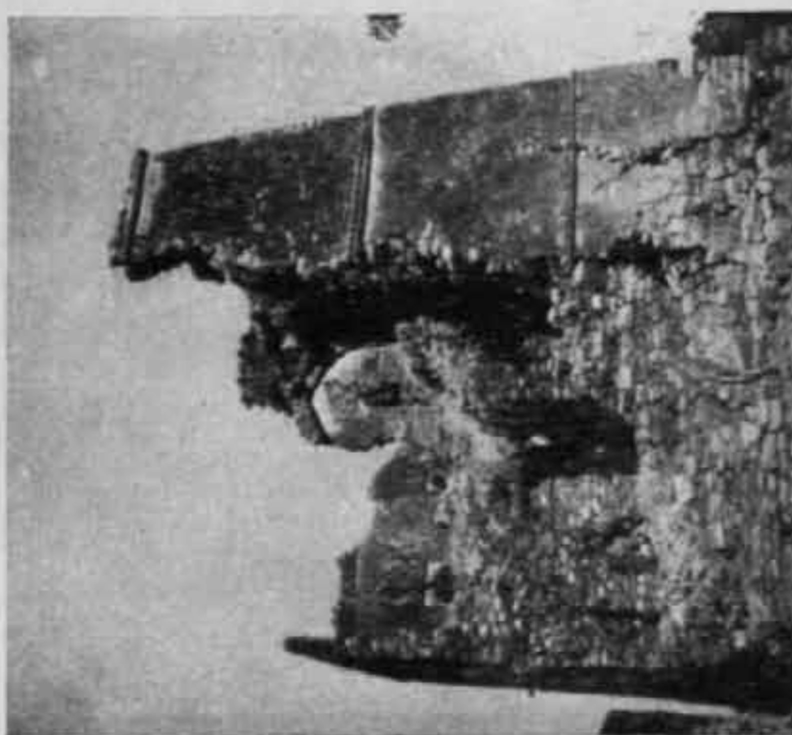


A



B

Chitorgarh: fort, Ratnesvara temple, dome, before and after repairs. *See p.* 103



A



B

Chitorgarh: fort, Jaimal's palace, before and after repairs. See p. 103



A

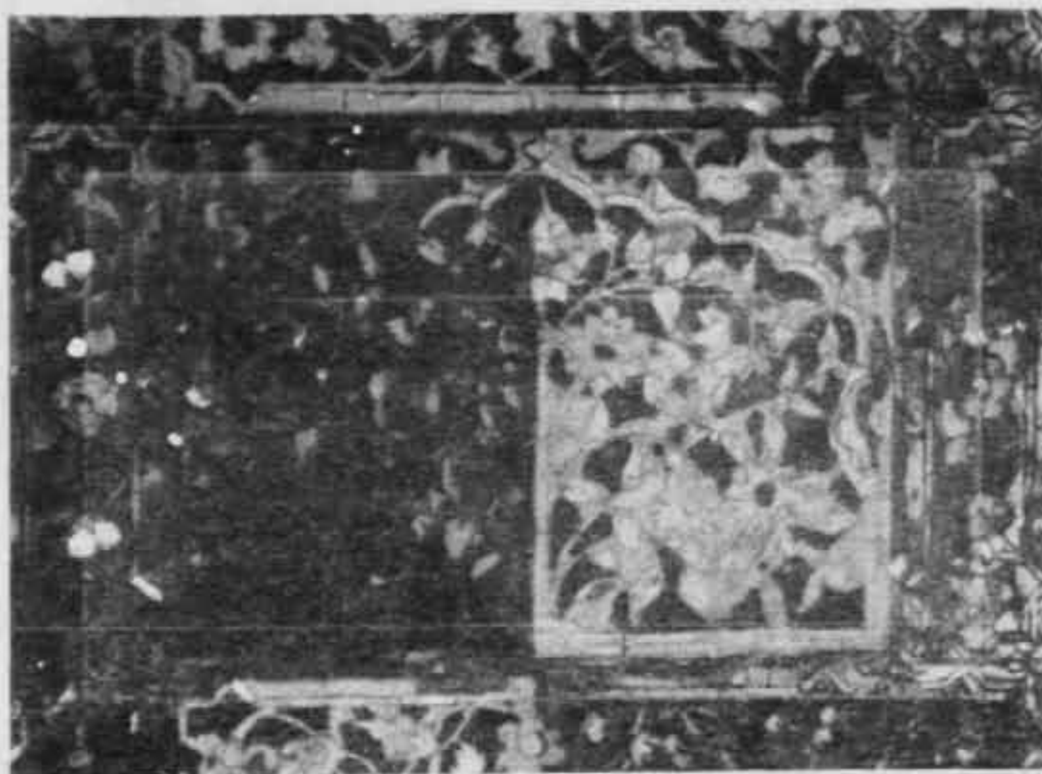


B

Bhuj: Lakhapatji's chhatri, before and after clearance. See p. 104



A



B

A, *Lepakshi: Virabhadrasvami temple, painting during treatment*; B, *Agra: Chini-Ka-Rauza, tile, during treatment. See pp.* 106 *and* 109



A

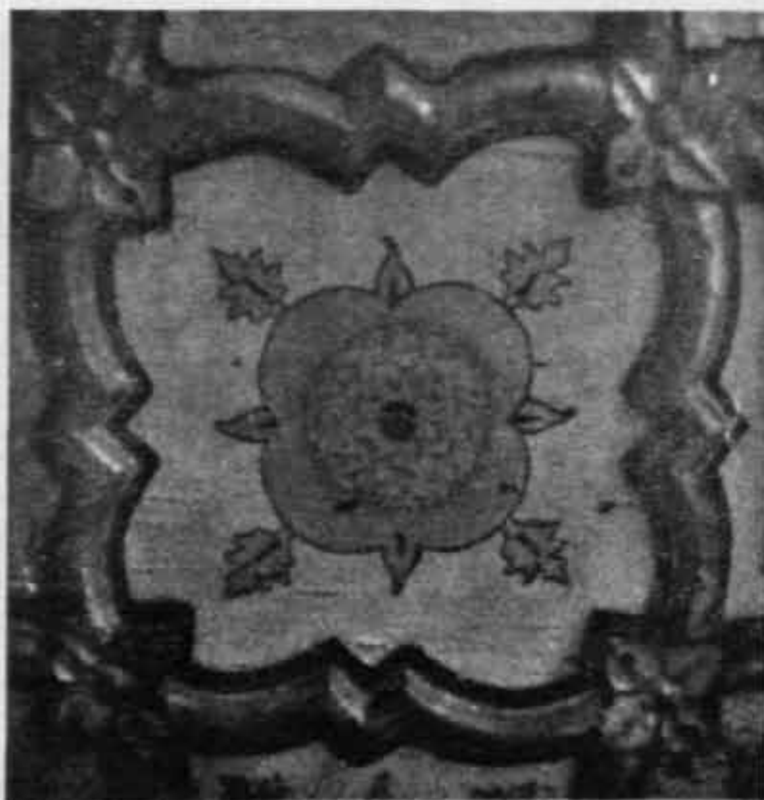


B

Nalanda: stucco figure, A, *before treatment, and* B, *after treatment.* *See p.* 106



A



B

Delhi: Red Fort, ceiling, A, before treatment, and B, after treatment. See p. 106



A

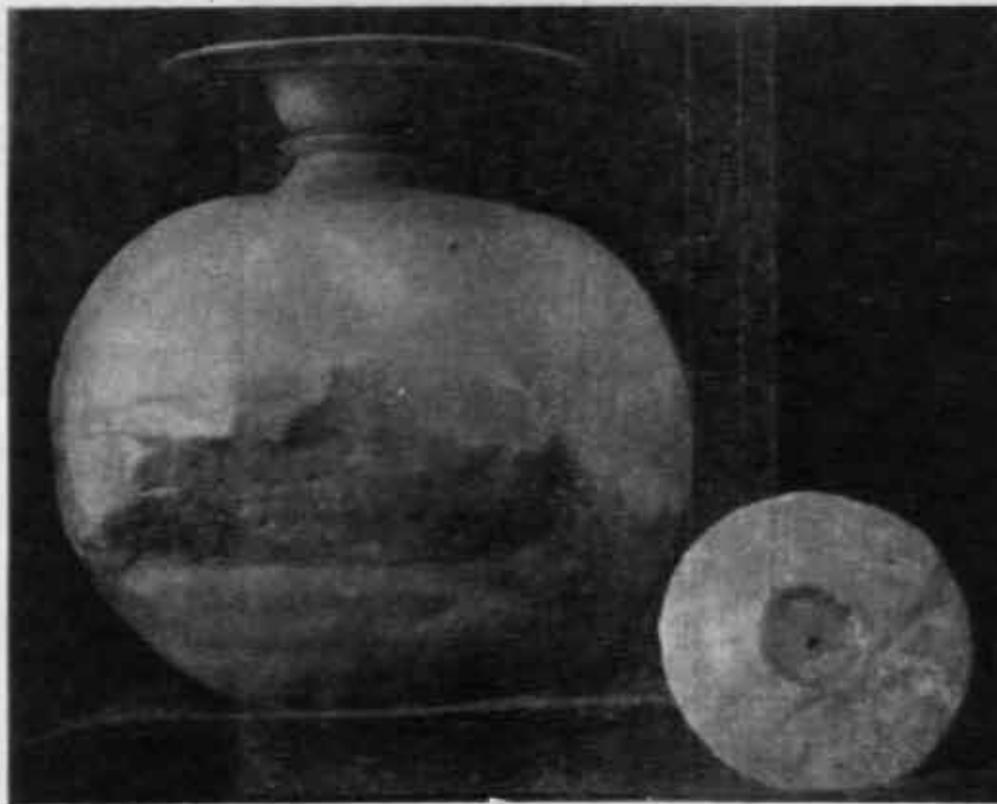


B

Sittannavasal: Jaina cave, painting on the ceiling of verandah, during treatment. *See p.* 107



A



B

Delhi: Qutb, copper pot, before and after treatment. *See p.* 109



A



B

Ratnagiri: bronze figure, before and after treatment. *See p. 109*

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